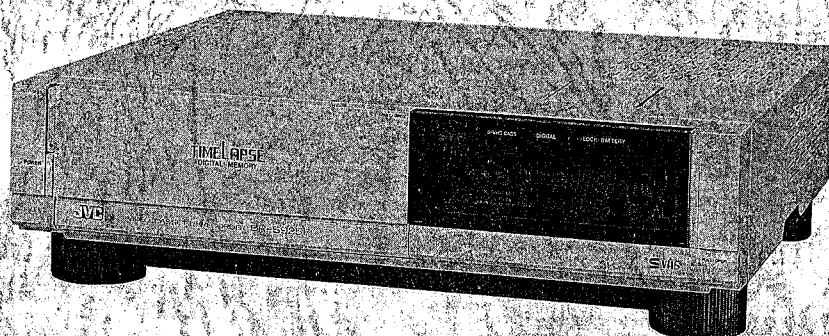


# JVC

## SERVICE MANUAL

### TIME LAPSE VIDEO CASSETTE RECORDER

## BR-S925E/BR-S920E



VHS  
PAL

### SPECIFICATIONS

#### GENERAL

Power requirement : AC 220 — 240 V  
Power consumption : 35 W (BR-S920E), 41 W (BR-S925E)  
Dimensions : 435 (W) X 124 (H) X 370 (D) mm  
Weight : 10 Kg  
Temperature  
    Operating : 5°C to 40°C  
    Storage : -20°C to 60°C  
Operating humidity : 30% to 80%  
Format : S-VHS Europe standard  
Tape speed : 23.39 mm/sec  
            (SP, TL), 11.70 mm/sec (LP)

Recording and  
playback time : 3 (VHS SP/S-VHS SP), 6 (VHS LP/S-  
VHS LP), 24, 48, 72, 120, 168, 240,  
480, 960 hours (with E-180/SE-180  
cassette)

#### VIDEO

Signal system : PAL-type colour signal/PAL-type Y/C  
signal, CCIR monochrome signal, 625  
line/50 field

#### Recording system

Luminance : FM recording  
Colour : Down-converted direct recording

#### Input

Line : 0.5 to 2.0 Vp-p, 75 ohms, unbalanced  
Y/C : Y : 0.5 to 2.0 Vp-p, 75 ohms, unbalanced  
C : 0.3 Vp-p, 75 ohms, unbalanced (Burst)

#### Output

Line : 1.0 Vp-p, 75 ohms, unbalanced  
Y/C : Y : 1.0 Vp-p, 75 ohms, unbalanced  
C : 0.3 Vp-p, 75 ohms, unbalanced (Burst)

Horizontal resolution : 400 lines (S-VHS, colour)  
240 lines (VHS, colour)  
300 lines (VHS, monochrome)  
Signal-to-noise ratio : 43 dB (S-VHS/SP)

#### AUDIO

Number of tracks : 1  
Input : -8 dBs, unbalanced  
Output : -6 dBs, unbalanced  
Frequency response : 100 Hz to 8 kHz  
Signal-to-noise ratio : 40 dB (SP at 3% distortion)  
Wow and flutter : Less than 0.35% RMS

#### TIME/DATE GENERATOR

Display : Day, month, year, hours, minutes,  
seconds, recording mode  
Character size : 16 H  
Power back up : Approx. one year

#### ACCESSORIES

Provided  
accessories : "R6/AA/UM-3" battery X 3

For best results, use only JVC Professional S tape.

*Design and specifications subject to change without notice.*





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# Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

## ● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the  symbol and shaded (■) parts are critical for safety.

Replace only with specified part numbers.

**Note:** Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.

Caution for continued protection against fire hazard.

Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:

- 1) Wires covered with PVC tubing
- 2) Double insulated wires
- 3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:

- |                    |                                      |            |
|--------------------|--------------------------------------|------------|
| 1) Insulation Tape | 3) Spacers                           | 5) Barrier |
| 2) PVC tubing      | 4) Insulation sheets for transistors |            |

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

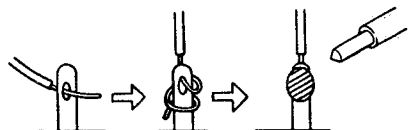


Fig. 1

7. Observe that wires do not contact heat producing parts (heat-sinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it.

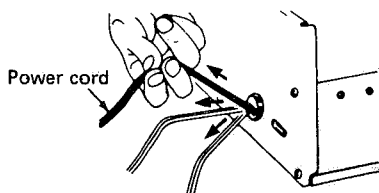


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)

In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector

In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

1) **Connector part number :** E03830-001

2) **Required tool :** Connector crimping tool of the proper type which will not damage insulated parts.

3) **Replacement procedure**

(1) Remove the old connector by cutting the wires at a point close to the connector.

Important : Do not reuse a connector (discard it).

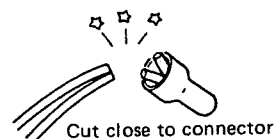


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

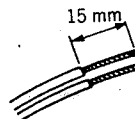


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

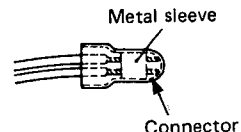


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

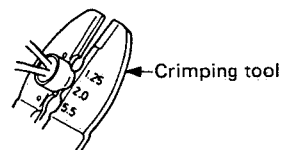


Fig. 6

(5) Check the four points noted in Fig. 7.

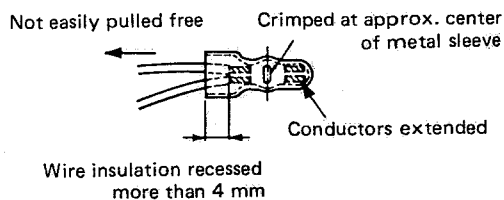


Fig. 7

## ● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

### 1. Insulation resistance test

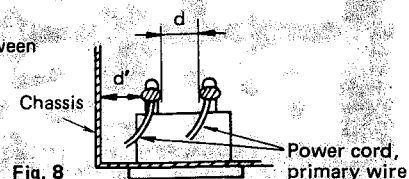
Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

### 2. Dielectric strength test

Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

### 3. Clearance distance

When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

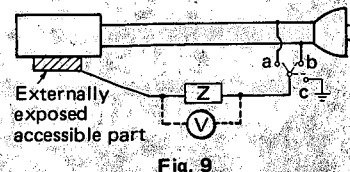


### 4. Leakage current test

Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

**Measuring Method:** (Power ON)

Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

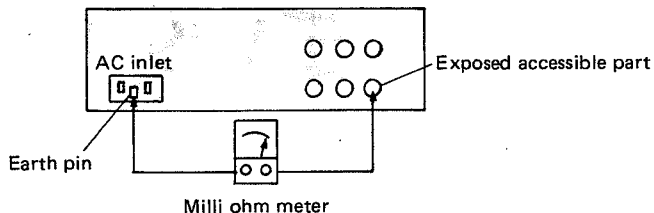


### 5. Grounding (Class I model only)

Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).

**Measuring Method:**

Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.



**Grounding Specifications**

Region	Grounding Impedance (Z)
USA & Canada	$Z \leq 0.1 \text{ ohm}$
Europe & Australia	$Z \leq 0.5 \text{ ohm}$

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	$R \geq 1 \text{ M}\Omega / 500 \text{ V DC}$	AC 1 kV 1 minute	$d, d' \geq 3 \text{ mm}$
100 to 240 V			AC 1.5 kV 1 minute	$d, d' \geq 4 \text{ mm}$
110 to 130 V	USA & Canada	—	AC 900 V 1 minute	$d, d' \geq 3.2 \text{ mm}$
110 to 130 V	Europe & Australia	$R \geq 10 \text{ M}\Omega / 500 \text{ V DC}$	AC 3 kV 1 minute (Class II)	$d \geq 4 \text{ mm}$
200 to 240 V			AC 1.5 kV 1 minute (Class I)	$d' \geq 8 \text{ mm (Power cord)}$ $d' \geq 6 \text{ mm (Primary wire)}$

**Table 1** Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	$1 \text{ k}\Omega$	$i \leq 1 \text{ mA rms}$	Exposed accessible parts
110 to 130 V	USA & Canada	$0.15 \mu\text{F}$ and $1.5 \text{ k}\Omega$	$i \leq 0.5 \text{ mA rms}$	Exposed accessible parts
110 to 130 V	Europe & Australia	$2 \text{ k}\Omega$	$i \leq 0.7 \text{ mA peak}$ $i \leq 2 \text{ mA dc}$	Antenna earth terminals
220 to 240 V		$50 \text{ k}\Omega$	$i \leq 0.7 \text{ mA peak}$ $i \leq 2 \text{ mA dc}$	Other terminals

**Table 2** Leakage current specifications for each region

**Note:** These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

# INSTRUCTIONS

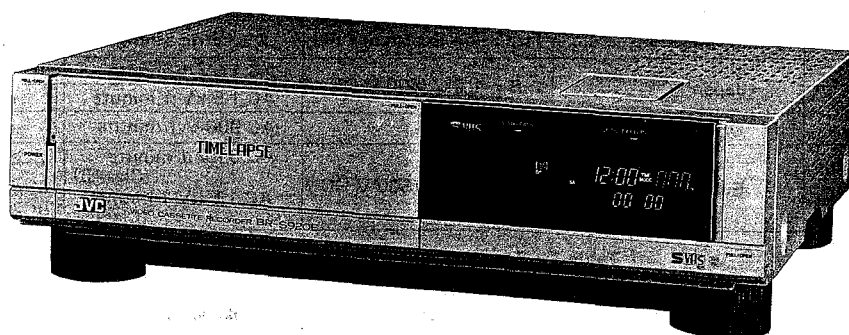
# JVC

## BR-S925E BR-S920E

TIME LAPSE VIDEO CASSETTE RECORDER  
MAGNETOSCOPE A CASSETTE A LAPS DE TEMPS  
VHS-LANGZEIT-VIDEOREKORDER



VHS  
PAL



(Photo shows BR-S920E.)  
(Die Abbildung zeigt BR-S920E.)  
(La photo montre le BR-S920E.)

## SAFETY PRECAUTIONS

### Warning Notice FOR YOUR SAFETY (Australia)

1. Insert this plug only into effectively earthed three-pin power outlet.
2. If any doubt exists regarding the earthing, consult a qualified electrician.
3. Extension cord, if used, must be three-core correctly wired.

### IMPORTANT (In the United Kingdom) Mains Supply (AC 240 V~) WARNING - THIS APPARATUS MUST BE EARTHED

The wires in this mains lead are coloured in accordance with the following code;

GREEN-and-YELLOW:	EARTH
BLUE:	NEUTRAL
BROWN:	LINE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows.

The wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked with the letter E or by the safety earth symbol  $\equiv$  or coloured GREEN or GREEN-AND-YELLOW. The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or which is coloured BLACK. The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

### POWER SYSTEM

#### Connection to the mains supply

The operating voltage of this set is preset to 220 - 240 V~ at the factory.

Before connecting to mains, check that the voltage selector on the rear panel is set to the same voltage as your local mains supply.

#### Adapting to local power line

This set operates on 220 - 240 V~ AC, 50/60 Hz.

If the preset voltage is different from the power line voltage in your area, reset the voltage selector by inserting a screwdriver into the slot of the voltage selector and turning it until the correct voltage is displayed.

This unit is produced to comply with Directives 76/889/EEC, 82/499/EEC, 87/308/EEC, and IEC Publ.65.

### WARNING:

**TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

### CAUTION

To prevent electric shock, do not open the cabinet. No user serviceable parts inside. Refer servicing to qualified service personnel.

### Note:

The rating plate and the safety caution are on the rear of the unit.

### WARNING

It should be noted that it may be unlawful to re-record pre-recorded tapes, records, or discs without the consent of the owner of copyright in the sound or video recording, broadcast, or cable programme and in any literary, dramatic, musical, or artistic work embodied therein.

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## PRECAUTIONS

### NOTE:

This instruction manual covers two video recorders: the BR-S925E and the BR-S920E. All information pertains to both units unless otherwise specified. Sections related to digital effects may be disregarded by BR-S920E users.

### VCR

- Avoid using the recorder in places subject to the following conditions:
  - extreme heat, cold, or humidity,
  - dust,
  - near appliances generating strong magnetic fields,
  - vibrations, and
  - poor ventilation.
- Be careful of moisture condensation. Do not use the recorder immediately after moving it from a cold place to a warm place. The water vapour in warm air will condense on the still-cold video head drum and tape guides and may cause damage to the tape and the recorder.
- Handle the recorder carefully.
  - Do not block the ventilation openings.
  - Do not place anything heavy on the recorder.
  - Do not place anything which might spill on the top cover of the recorder.
  - Use in horizontal (flat) position only.

- During transportation,
  - Avoid violent shocks to the recorder during packing and transportation.
  - Before packing, be sure to remove the cassette from the recorder.

### VIDEO CASSETTES

- This recorder uses S-VHS and VHS cassettes.
- For best results, use only JVC professional S tape.
- S-VHS cassettes can also be used in VHS operation.
- Avoid exposing the cassettes to direct sunlight. Keep them away from heaters.
- Avoid extreme humidity, violent vibrations or shocks, strong magnetic fields (near a motor, transformer or magnet) and dusty places.
- Place the cassettes in cassette cases and position vertically.
- Do not use tapes that are longer than the SE-180/E-180.

### AVAILABLE RECORDING TIMES

- Selectable with the TIMELAPSE MODE +/- buttons.

Display	Mode	Recording time					Recording/ playback interval	Audio recording
		SE-30/E-30	SE-60/E-60	SE-90/E-90	SE-120/E-120	SE-180/E-180		
000 H	One-shot	—	—	—	—	—	Max. 3 min	No
003 H	S-VHS/ VHS SP	30 min	1 hour	1 h 30 min	2 hours	3 hours	—	Yes
006 H	S-VHS/ VHS LP	1 hour	2 hours	3 hours	4 hours	6 hours	—	
024 H	TL/24	4 hours	8 hours	12 hours	16 hours	24 hours	0.16 sec	No
048 H	TL/48	8 hours	16 hours	24 hours	32 hours	48 hours	0.32 sec	
072 H	TL/72	12 hours	24 hours	36 hours	54 hours	72 hours	0.48 sec	
120 H	TL/120	20 hours	40 hours	60 hours	90 hours	120 hours	0.8 sec	
168 H	TL/168	28 hours	56 hours	84 hours	112 hours	168 hours	1.12 sec	
240 H	TL/240	40 hours	80 hours	120 hours	180 hours	240 hours	1.6 sec	
480 H	TL/480	80 hours	160 hours	240 hours	360 hours	480 hours	3.2 sec	
960 H	TL/960	160 hours	320 hours	480 hours	720 hours	960 hours	6.4 sec	

## FEATURES

### High-resolution S-VHS pictures\* with field recording/playback

The BR-S925E/920E incorporate the high-resolution S-VHS recording and playback system for more than 400 lines of horizontal resolution — 60% more than offered by conventional VHS video systems. For increased information-capturing capability, field mode recording and playback circuitry is provided. A different image can be recorded on each field with clear, sharp reproduction of everything from the words and figures on a text screen to the details and characteristics of an individual's face.

\* Incorporates Y/C separation technology licensed by FAROUDJA Laboratories.

\* Employs chroma-enhancing technology co-developed by JVC and FAROUDJA Laboratories and modified for S-VHS applications.

### Alarm recording with alarm/power-loss memory

For greater reliability, the BR-S925E/BR-S920E feature advanced alarm recording and alarm search capabilities. Whenever an alarm signal is received, the pre-selected VHS Standard (SP) or Long Play (LP) continuous record mode is automatically activated for uninterrupted real-time recording of the alarm situation. To enable easy, high-speed retrieval of each alarm recording, VISS index codes are automatically recorded on the tape whenever alarm recording starts. Recording time per alarm is selectable from 5 seconds, 10 seconds, 15 seconds, 30 seconds, 60 seconds, 180 seconds, to tape end, or for the duration of alarm signal input. Reliability is further enhanced by a 999-event alarm memory and 99-event power-loss memory with exact time and date available for the first recorded incident, as well as the last three. This data will help you pinpoint peak problem periods and can be checked at any time by calling up the on-screen display.

### Recording mode flexibility

Recording is possible for up to 960 hours (40 days) in the timelapse mode, with recording times also selectable from 24, 48, 72, 120, 168, 240, and 480 hours. You can choose a recording time to suit virtually any situation whether it's for a bank demanding 7-day coverage (168-hour mode) or a manufacturing operation closed down for the summer holidays (480/960-hour mode). Timelapse playback circuitry is also provided. For special requirements, one-shot field recording is possible with user-designated durations. Added versatility is provided by 14-day/8-event timer recording capability. This can be used in combination with timelapse recording to give you automatic coverage at specified times on a daily or weekly basis. For even greater flexibility, you can preset the recorder not to record on specified dates.

### Other Features

- On-screen setup menu and mode display
- Series recording capability
- Recording check function for instant playback quality check during recording
- Auto head-cleaning mechanism
- Advanced mode lock system
- Time/date generator with position control and power backup
- Camera switching signal output with selectable intervals
- Clock calibration terminals for automatic adjustment of all connected VCR clocks to precisely the same time
- Video mode select switch
- Auto-repeat recording and playback
- Still and field advance
- Shuttle Search
- Reverse, double-speed, and timelapse mode playback
- Auto-reset recording after power failure
- Front panel cover to protect cassette slot and controls from the environment
- Digital hour meter up to 9999 hours
- Electronic buzzer to signal start of alarm recording
- Electronic buzzer for tape-end warning
- Through output of EE input with power off (composite video signal only)
- Wired remote control (optional)

### SPECIAL FEATURES EXCLUSIVE TO THE BR-S925E

#### Built-in digital memory with quad-screen display capability

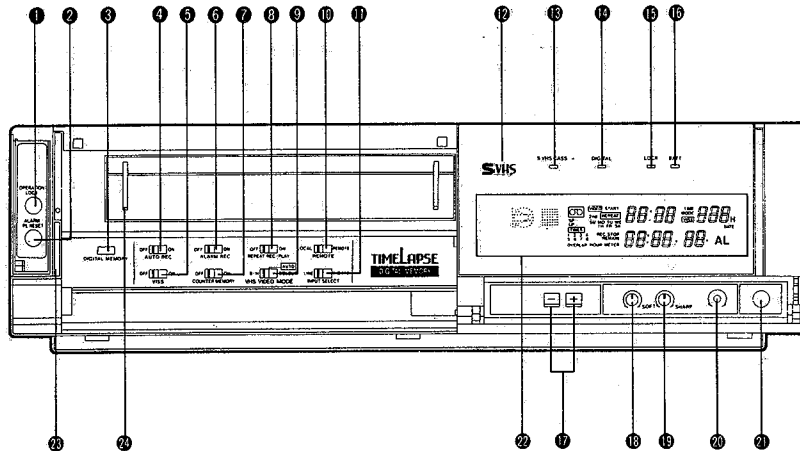
Incorporating an advanced digital memory and circuitry, the BR-S925E is able to deliver a stable, timebase-corrected playback picture — a feature especially useful in timelapse playback. Several digital effects are also provided, further enhancing this unit's flexibility and cost-effectiveness. Included among these is quad-screen display capability — a world first. Ideal for playback of images recorded with a multi-camera surveillance system operating on a sequential camera switcher, this allows simultaneous display of separate images in the quad-screen format. Other effects include Digital Skip to view images from a single camera successively, and Digital Still which allows stored still images to be viewed in the Play or Stop mode.

#### Built-in RS-232C interface

For direct computer interface, the BR-S925E incorporates an RS-232C 25-pin serial remote control connector. This permits easy incorporation in a centralised security system and makes possible more precise programming of timelapse mode switching.

# CONTROLS AND CONNECTORS

## FRONT PANEL



### 1 OPERATION LOCK button

### 2 ALARM/PL RESET button

### 3 DIGITAL MEMORY button (BR-S925E only)

- Activates digital memory. Delivers timebase-corrected pictures in the Play mode by replacing picked-up sync and burst signals with reference signals.
- The DIGITAL indicator remains lit while the digital memory is in use in the Digital Play and Digital Freeze modes.
- To use any digital effect, first press the DIGITAL MEMORY button.
- To deactivate the digital memory, press this button again.

### 4 AUTO REC switch

**ON:** To automatically restart recording when power is restored after a power failure. Also set to this position when recording with an external timer.

**OFF:** To disable automatic recording function. To avoid accidental erasure of recorded tapes, be sure to set to this position if you don't require automatic recording.

### 5 VISS (VHS Index Search System) switch

**ON:** To automatically locate recorded index codes in the Rewind or Fast-Forward mode. When used with alarm-recorded tapes, the beginning of the nearest alarm recording is located.

**OFF:** Normally set to OFF.

### 6 ALARM REC switch

**ON:** To switch from the timelapse recording mode to the 3-hour (S-VHS/VHS SP) or 6-hour (S-VHS/VHS LP) recording mode when an alarm signal is input. Alarm recording duration can be selected from 5 sec., 10 sec., 15 sec., 30 sec., 60 sec., 180 sec., to tape end, or for the duration of alarm signal input.

**OFF:** To continue recording in the same mode when an alarm signal is input.

### 7 COUNTER MEMORY switch

**ON:** Tape automatically stops at counter reading zero in the Rewind or Fast Forward mode.

**OFF:** To defeat counter memory function.

### 8 REPEAT REC/PLAY switch

**ON:** To repeat recording or playback. When the end of the tape is reached, the tape is rewound to the beginning and recording or playback automatically restarts.

**OFF:** No repeat operation.

### 9 VHS VIDEO MODE select switch

This applies to both recording and playback (VHS mode only).

**COLOR:** Set to this position when the input or playback video signal is in colour.

**AUTO:** Set to this position for automatic switching between colour and black/white modes according to the type of signal. Normally set to this position.

**B/W:** Set to this position when the input or playback video signal is monochrome.

### 10 REMOTE/LOCAL select switch

**LOCAL:** Set to this position to control the recorder with its own function buttons. Operation via a connected remote control unit or computer is not possible.

**REMOTE:** Set to this position to control the recorder via a connected remote control unit or computer. (The recorder's function buttons can still be used when the switch is set to this position.)

### 11 VIDEO INPUT select switch

To select input video signals for recording.

**LINE:** Selects the composite video signal applied to the VIDEO IN connector.

**Y/C 443:** Selects the separated Y/C signals applied to the Y/C 443 IN connector.

### 12 S-VHS indicator

- Lights when an S-VHS cassette is inserted.
- Lights during recording and playback in the S-VHS mode.

### 13 S-VHS cassette indicator

- Lights when an S-VHS cassette is inserted.

### 14 DIGITAL indicator (BR-S925E only)

- Lights when the DIGITAL MEMORY button 3 is pressed.
- Blinks in the Multi mode (Quad Display or Skip Play).

### 15 LOCK indicator

- Lights when the Operation Lock mode is engaged.

### 16 BATTERY indicator

- Lights if no TDG backup batteries have been installed.
- Lights when TDG backup battery power drops to a level requiring replacement. Replace the backup batteries with new R6/AA/UM-3 batteries.

### 17 TRACKING (+/-) buttons

- To adjust tracking to minimise noise bars in playback picture.
- Press both buttons simultaneously to reset tracking to normal.
- Tracking is automatically reset when a cassette is ejected or the power is switched off.

### 18 ON SCREEN BRIGHT control

- To adjust brightness of time/date characters superimposed on the picture. Using a screwdriver, turn clockwise to increase brightness, and counterclockwise to reduce brightness.

### 19 SHARPNESS control

- Turn for a softer or sharper playback picture.

### 20 V-Lock control

- Turn to eliminate vertical jitter in still pictures.

### 21 REMOTE terminal (RCA)

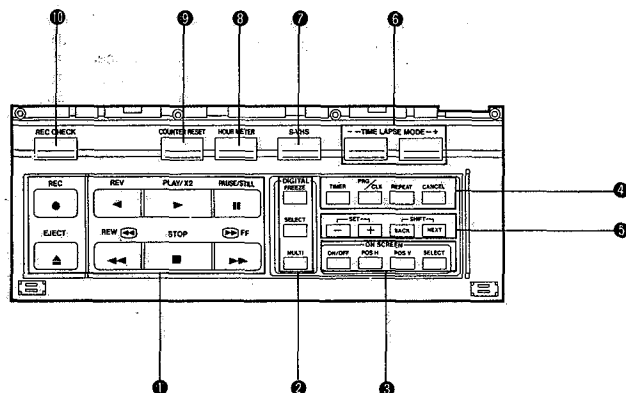
- Connect the optional remote control unit (RM-G30U) to this terminal.

### 22 FDP (Fluorescent Display Panel)

### 23 POWER button with LED indicator

### 24 Cassette loading slot

## FOLDOUT CONTROL PANEL



### 1 Operation buttons

- REV button**
  - Starts reverse playback at normal speed.
- REC button**
  - Starts recording.
  - Activates the off-timer when pressed in the Record mode.
- EJECT button**
  - Ejects the cassette.
- REW button**
  - Starts tape rewind when pressed in the Stop mode.
  - Starts high-speed reverse shuttle search when pressed in the Play mode.
  - Starts alarm search in the reverse direction if the front panel VISS switch ⑨ is set to ON.
- PLAY/X2 button**
  - Starts playback.
  - Starts double-speed playback when pressed in the Play mode.
  - Re-starts normal playback when pressed in the Still, Double-speed, or Search mode.
  - Re-starts recording when pressed in the Record-Pause mode.
- STOP button**
  - Stops the tape.
- PAUSE/STILL button**
  - Temporarily stops recording when pressed in the Record mode.
  - Displays a still picture when pressed in the Play mode.

### FF button

- Starts tape fast forward when pressed in the Stop mode.
- Starts high-speed forward shuttle search when pressed in the Play mode.
- Starts alarm search in the forward direction when the front panel VISS switch ⑨ is set to ON.

### 2 DIGITAL buttons (BR-S925E only)

- To apply digital effects during playback, the digital memory must be activated. To activate it, press the DIGITAL MEMORY button ⑨.
- MULTI button**
  - Press once to display images from different cameras in four windows (Quad Display).
  - Press again to successively display images from a single camera (Skip Display).
  - Press again to return to the normal Digital Play mode. Digital Play → Quad Display → Skip Play → Digital Play...
- SELECT button**
  - Sequentially selects camera pictures while in the Quad Display or Skip Play mode.
  - When pressed in the Quad Display mode, camera pictures in windows rotate counterclockwise. A new camera picture (if available) will appear in the bottom right window.
  - When pressed in the Skip Play mode, the camera picture currently being played back is replaced by the next camera picture.
- FREEZE button**
  - To output a still image from digital memory in the Digital Play or Still mode. The still image continues to be output even when the Stop mode is engaged.

### 3 ON SCREEN buttons

- To select on-screen modes and character position.
- ON/OFF button**
  - ON: To record time/date information together with the input signal and superimpose it on the picture.
  - OFF: To defeat recording and superimposition of time/date information.
- POS H button**
  - To horizontally shift superimposed time/date characters.
- POS V button**
  - To vertically shift superimposed time/date characters.
- SELECT button**
  - To select the On-Screen Display mode. Six different displays are available (see p.11 "On-Screen Display and Setup Menu").

### 4 TIMER/TDG buttons

- To set the timer and time/date generator.
- TIMER button**
  - Engages the Timer Standby mode after the 14-day/8-event timer has been programmed.
- PROGRAM/CLOCK button**
  - Switches the display mode between Clock mode, Timer Set mode, and Clock Set mode.
- REPEAT button**
  - To select weekly and daily timer programming options.
- CANCEL button**
  - Engages the Cancel Program mode.
  - Cancels programmed timer data.

### 5 SET/SHIFT buttons

- SET (+/-) buttons**
  - To set data in the Clock Set, Timer Set, or Setup Menu mode.
- SHIFT (NEXT/BACK) buttons**
  - To select items in the Clock Set, Timer Set, or Setup Menu mode.

### 6 TIMELAPSE MODE (+/-) buttons

To select tape speed in recording and playback. The selected mode is indicated on the display panel.

- Display
- 000 H : One-shot recording
  - 003 H : S-VHS/VHS SP mode
  - 006 H : S-VHS/VHS LP mode
  - 024 H : Timelapse 24-hour mode
  - 048 H : Timelapse 48-hour mode
  - 072 H : Timelapse 72-hour mode
  - 120 H : Timelapse 120-hour mode
  - 168 H : Timelapse 168-hour mode
  - 240 H : Timelapse 240-hour mode
  - 480 H : Timelapse 480-hour mode
  - 960 H : Timelapse 960-hour mode

### 7 S-VHS button

- Alternates between S-VHS and VHS modes. Press to cancel the S-VHS mode when recording in the VHS mode on an S-VHS cassette.

### 8 HOUR METER button

- Displays the total VCR operating time on the display panel (up to 9999 hours). To cancel the hour meter display, press it again.

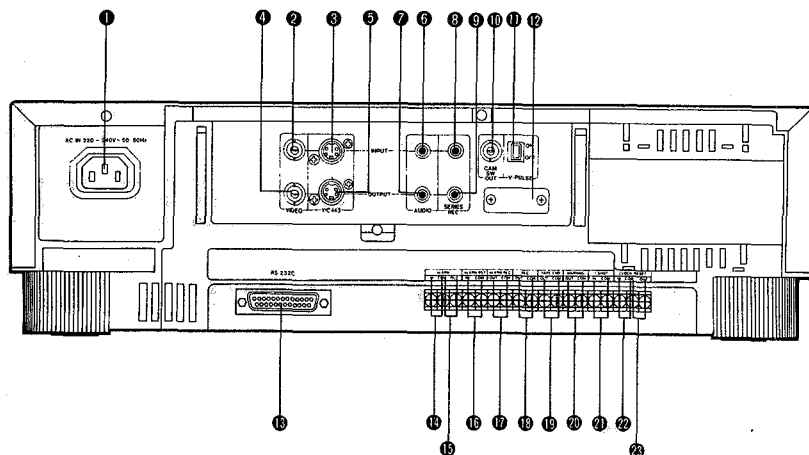
### 9 COUNTER RESET button

- Resets the counter on the display panel to zero.

### 10 REC CHECK button

- When pressed during recording, rewinds the tape briefly, plays back the last recorded segment, and then resumes recording.

## REAR PANEL



### 1 AC input socket (AC IN 220V-240V)

- Connect to a 220V-240V AC, 50/60 Hz power outlet.

### 2 VIDEO IN connector (BNC)

### 3 Y/C 443 IN connector

### 4 VIDEO OUT connector (BNC)

- Outputs the signal input to the VIDEO IN connector 2 even when power is off.

### 5 Y/C 443 OUT connector

### 6 AUDIO IN connector

### 7 AUDIO OUT connector

### 8 SERIES REC IN terminal

- Connect to the SERIES REC OUT terminal of another recorder for series recording. When the tape in the preceding recorder nears the end, a signal will be delivered to this terminal. Recording will start automatically.

### 9 SERIES REC OUT terminal

- Connect to the SERIES REC IN terminal of another recorder for series recording. When the tape in this recorder nears the end, a signal will be delivered to the connected recorder for automatic start of recording.

### 10 CAMERA SW OUT connector

- Connect to a sequential camera switcher to deliver a command signal for camera switching.

#### Note:

Low active pulse, width: 5 m sec.

### 11 V.PULSE switch

- ON: Set to this position when using non-interlaced cameras. Vertical dancing of the playback picture will be reduced.
- OFF: No effect. Normally set to this position.

### 12 DIP switches

- Be sure to turn the power off before setting.

SW 1 — 3: Selects RS-232C data transmission speed.

	600 (BPS)	1200 (BPS)	2400 (BPS)	4800 (BPS)	9600 (BPS)
SW-1	ON	ON	ON	OFF	OFF
SW-2	ON	ON	OFF	ON	OFF
SW-3	ON	OFF	OFF	OFF	OFF

SW 4 — 8: Not used.

### 13 RS-232C port (BR-S925E only)

- Connect an RS-232C interface cable for computer control.

### 14 ALARM IN/COM terminals

- Connect to an external sensor for alarm signal input.

### 15 ALARM OUT/COM terminals

- Outputs the alarm signal input to ALARM IN.

### 16 ALARM RST IN/COM terminals (Alarm reset)

- Cancels alarm recording.

### 17 ALARM REC OUT/COM terminals

- Outputs +12 V during alarm recording.

### 18 REC OUT/COM terminals

- Outputs +12 V during recording.

### 19 TAPE END OUT/COM terminals

- Outputs +12 V during recording. Drops to 0 V (GND level) when tape end is detected.
- Connect to an external alarm lamp or buzzer.
- To cancel output, press EJECT, PLAY, FF, or REW.
- When VCR detects tape end during auto repeat recording in Auto Rewind mode, the pulse is output for about 2 seconds.

### 20 WARNING OUT/COM terminals

#### 21 1 SHOT IN/COM terminals

- Connect to a remote control switch for one-shot field recording.

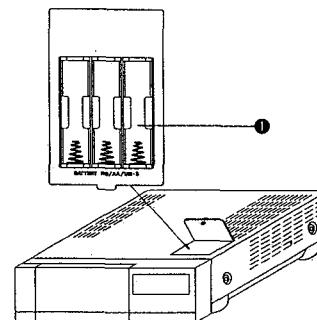
#### 22 CLOCK RESET IN/COM terminals

- Connect to another BR-S925E/920E's CLOCK RESET OUT terminal to automatically reset the clock at 0:00 AM and 12:00 PM.

#### 23 CLOCK RESET OUT/COM terminals

- Outputs 0 V (GND level) at 0:00 AM and 12:00 PM for automatic adjustment of all connected VCR clocks.

## TOP PANEL



### 1 Battery holder

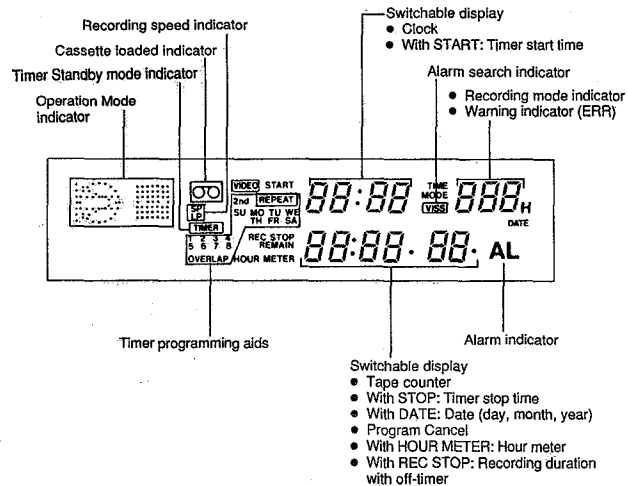
- Insert TDG backup batteries (R6/AA/UM-3) in here.

#### NOTE:

- Batteries must be replaced once a year.
- When the backup batteries have been in use for a long period, check the time and date to confirm that data is correct.

# DISPLAYS

## FLUORESCENT DISPLAY PANEL



### Tape Operation Mode Indicators

Play/Double-Speed Play	▶▶
Reverse Play	◀◀
Time-lapse Play	▶▶▶▶
Fast Forward	▶▶▶▶
Rewind	◀◀◀◀
Forward Search	▶▶▶▶▶▶
Reverse Search	◀◀◀◀◀◀
Still/Field Advance	▶▶▶▶
Record	○
Record-Pause	○▶▶▶

## ON-SCREEN DISPLAY AND SETUP MENU

To check time and date, or alarm/power-loss memory data, use the on-screen display. The setup menu is also available on-screen. (Video signal input is necessary.)

### 1. Press ON SCREEN ON/OFF.

On-screen page 1 appears.

Page 1: Time, date, and recording speed.

12:30:45 SP  
25-12-92

### 2. Press ON SCREEN SELECT.

On-screen page 2 appears.

Page 2: Time, date, and recording speed, plus alarm input and power loss totals.

12:30:45 SP  
25-12-92  
AL-002 PL-01

### 3. Press ON SCREEN SELECT.

On-screen page 3 appears.

Page 3: ALARM IN data with time and date for the first alarm input and the last three.

ALARM IN	
AL-001	10:20:00 25-12-92
AL-002	21:15:00 26-12-92
AL-000	00:00:00 0- 0-92
AL-000	00:00:00 0- 0-92

### 4. Press ON SCREEN SELECT.

On-screen page 4 appears.

Page 4: POWER LOSS data with time and date for the first power loss and the last three.

• To reset the alarm/power loss memory, press the ALARM/PL RESET button twice. ("AL" blinks on the FDP when pressed once.) All alarm and power loss data will be cleared.

POWER LOSS	
PL-01	23:00:05 25-12-92
PL-02	21:15:30 26-12-92
PL-00	00:00:00 0- 0-92
PL-00	00:00:00 0- 0-92

### 5. Press ON SCREEN SELECT.

On-screen page 5 appears.

Page 5: Setup Menu.

To change the setting, select the item with the SHIFT NEXT or BACK button and set the data with the SET "+" or "-" button. Available settings are as follows:

ALARM MODE: SP ↔ LP

ALARM TIME: 5 SEC → 10 SEC → 15 SEC → 30 SEC → 60 SEC → 180 SEC → TAPE E (End) → MANUAL (during alarm input) → 5 SEC...

ALARM BUZ: ON ↔ OFF

END BUZ: ON ↔ OFF

1 SHOT FIELD: 1 → 2 → 5 → 10 → 1...

### NOTES:

- The buzzer for tape-end beeps for about 3 minutes.
- To stop the buzzer, set menu item "END BUZ" to OFF, or press either STOP or POWER. The buzzer also stops when the power is automatically turned off.

### 6. Press ON SCREEN SELECT.

On-screen page 6 appears.

Page 6: Setup Menu.

To change the setting, select the item with the SHIFT NEXT or BACK button and set the data with the SET "+" or "-" button. Available settings are as follows:

AUTO REW: ON ↔ OFF

CAM SW: 1 FIELD → 1 FRAME → 2 FRAMES → 25 FRAMES → 50 FRAMES → OFF → 1 FIELD...

SERIES REC: ON ↔ OFF

SKIP MODE: 1 → 2 → 3 → 4 → 5 → 6 → 7 → 8 → 9 → 10 → 11 → 12 → 13 → 14 → 15 → 16 → 1...

only)

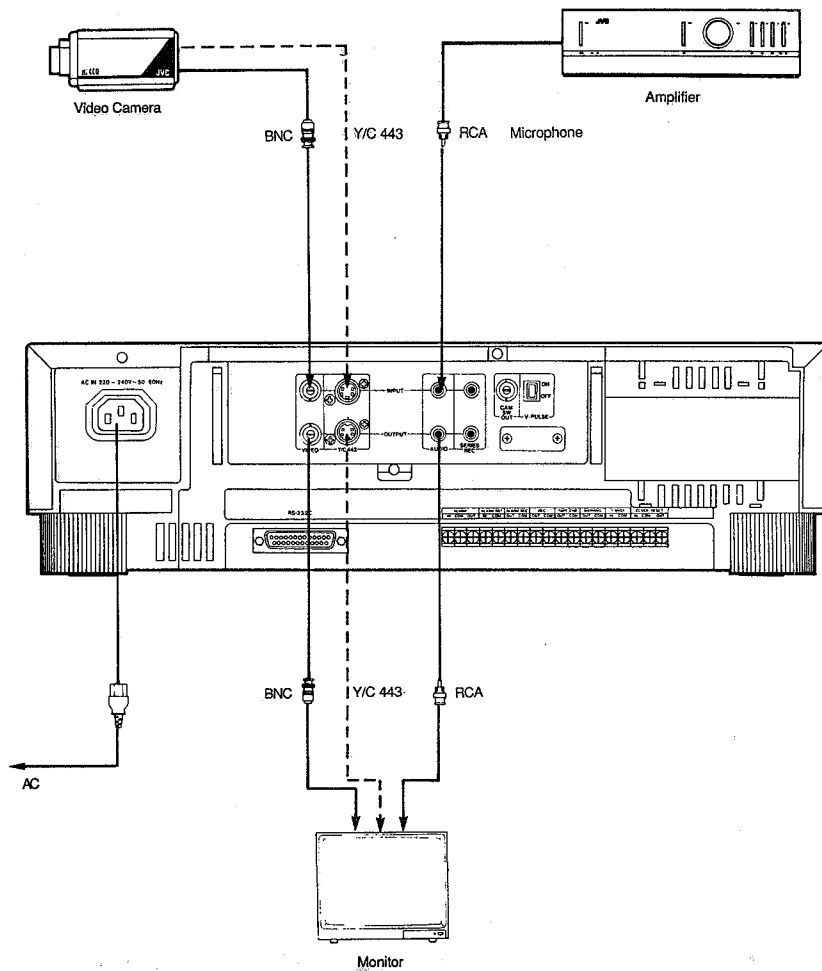
(ALARM MODE)	SP
(ALARM TIME)	5 SEC
(ALARM BUZ)	OFF
(END BUZ)	OFF
(1 SHOT FIELD)	2

(AUTO REW)	OFF
(CAM SW)	OFF
(SERIES REC)	OFF
(SKIP MODE)	1

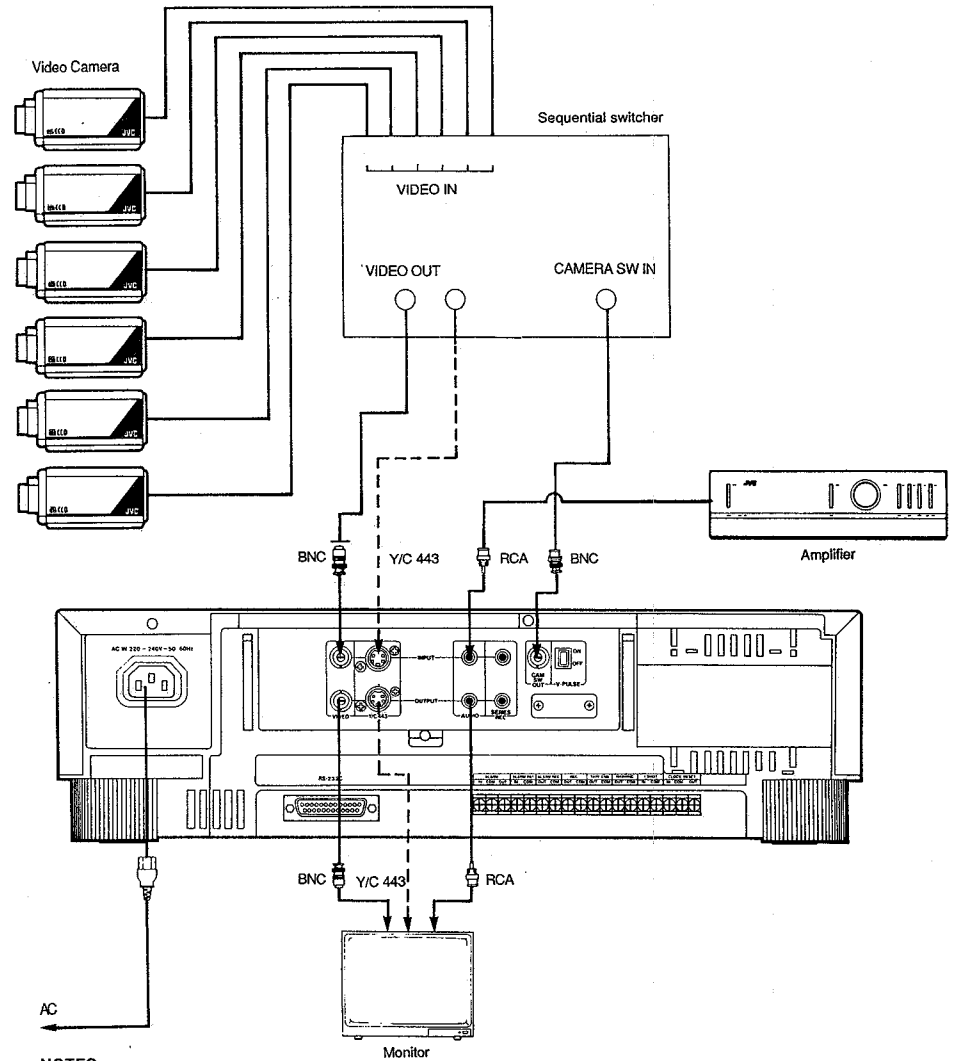


# CONNECTIONS

## CONNECTION TO A CAMERA WITH A BUILT-IN SSC



## CONNECTION TO SEVERAL CAMERAS VIA A SEQUENTIAL SWITCHER



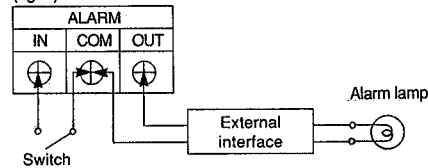
### NOTES:

- Camera signals can be monitored even if the recorder's power is off. (composite video signal only)
- When connecting to the SW-C300E or SW-501E, set the timelapse mode to 24 hours or longer.
- When connecting to a sequential switcher with an alarm input terminal, set the On-Screen Setup Menu item "ALARM TIME" to "MANUAL". Alarm time setting is done by the sequential switcher.

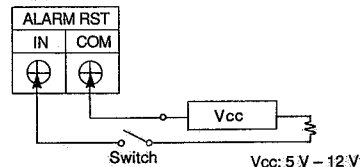
## INPUT/OUTPUT TERMINAL CONNECTIONS

### ALARM IN/OUT

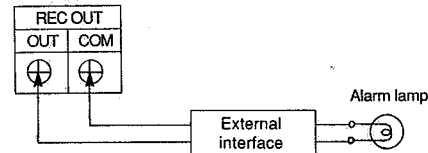
(eg. 1)



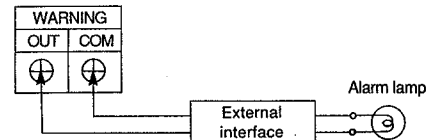
### ALARM RESET



### REC OUT



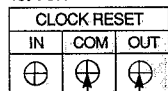
### WARNING



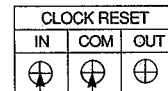
### CLOCK RESET

- When adjusting the clock to 1st VCR's clock.

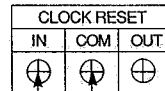
1st VCR



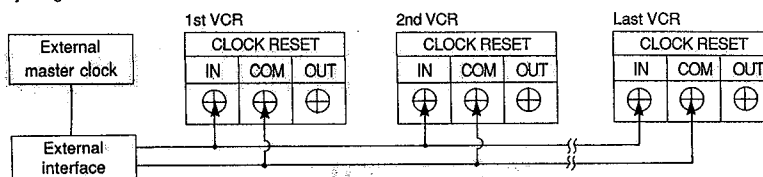
2nd VCR



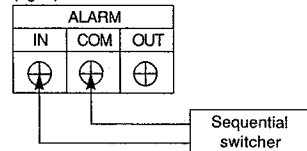
Last VCR



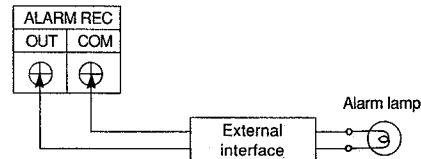
- When adjusting the clock to external master clock.



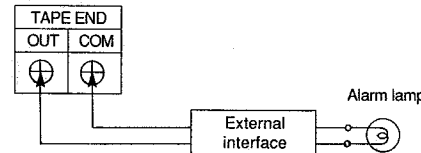
(eg. 2)



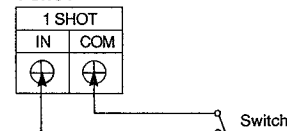
### ALARM REC



### TAPE END

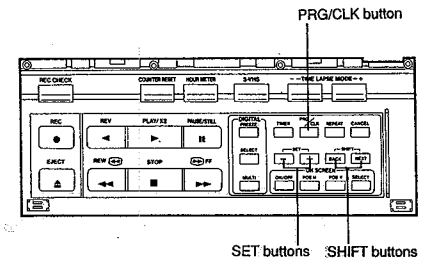


### 1 SHOT

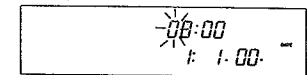


## CLOCK SETTING

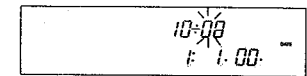
Time/date generation and timer operation are not possible if the clock has not been set.



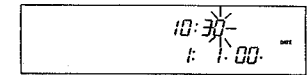
- Press PRG/CLK until the Clock Set mode is engaged.
  - The hour indication will blink.



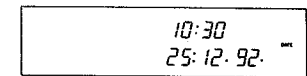
- Enter the hour with either SET button, and press SHIFT NEXT.
  - To enter one digit only, press SHIFT NEXT, then set the number.



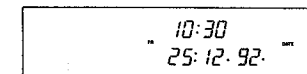
- Enter the minutes with either SET button, and press SHIFT NEXT.



- Enter the day, month, and year in the same way.
  - In year setting, set only the last two digits of the year.
  - If you make a mistake, press SHIFT NEXT or SHIFT BACK to return to the item.
  - You can reset the seconds to "00" by pressing both SHIFT buttons or both SET buttons simultaneously.



- Press PRG/CLK to end clock setting.
  - Time-keeping starts.
  - The day-of-the-week indication is automatically displayed.




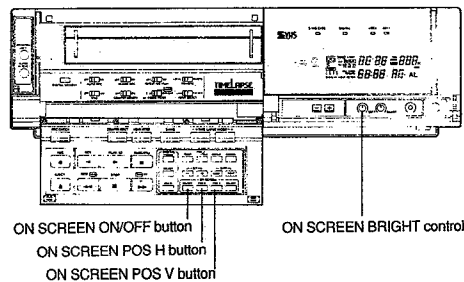
### Power failure indicator

- A blinking "SU 0:00" indicates that the backup batteries have been discharged. Replace the batteries and set the clock again.

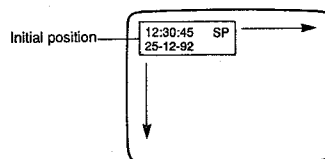
## TIME/DATE GENERATOR

The built-in time/date generator allows you to superimpose the time and date on the video image and record it.

- Make sure the recorder's clock is set correctly.  p.16



1. Press ON SCREEN ON/OFF to activate the On-Screen Display.
2. Press ON SCREEN POS H and POS V to move the cursor to the position where you want the superimposed characters to appear.
  - Pressing POS H moves the cursor to the right in 17 steps. Pressing the button again when the cursor is on the left of the screen will return it to the left.
  - Pressing POS V moves the cursor down the screen in 15 steps. Pressing the button again when the cursor is at the bottom of the screen will return it to the top.
3. Adjust the brightness of the time/date display with the ON SCREEN BRIGHT control.
  - Turn clockwise to increase brightness or counterclockwise to decrease it.



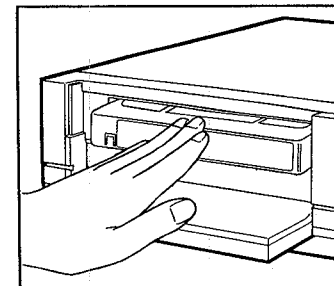
### NOTES:

- The clock must be reset after the recorder has been unplugged for a long period of time.
- Because the clock may gain or lose up to 60 sec. a month due to environmental variations such as temperature fluctuations, we recommend that the clock be adjusted on a regular basis.

## HANDLING VIDEO CASSETTES

### LOADING

1. Insert a cassette with its label side facing you.
  - The power will come on automatically.
  - If an S-VHS cassette is inserted, the S-VHS and S-VHS CASS. indicators will light.
  - If the safety tab has been removed, playback will start automatically.
  - For best results, use only JVC video cassettes.



### UNLOADING

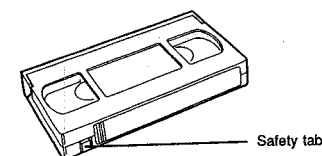
1. Press EJECT.
  - Even when the power is off, simply press the EJECT button to unload a cassette.
  - If the cassette will not eject, check to see if "TIMER" is displayed on the display panel. If it is, press the TIMER button to turn off the Timer Standby mode.

### WARNING

- Do not insert fingers or foreign objects into the cassette loading slot as this may result in personal injury or damage to the mechanism.
- Do not try to remove the cassette once automatic loading has started.

### ACCIDENTAL ERASURE PREVENTION

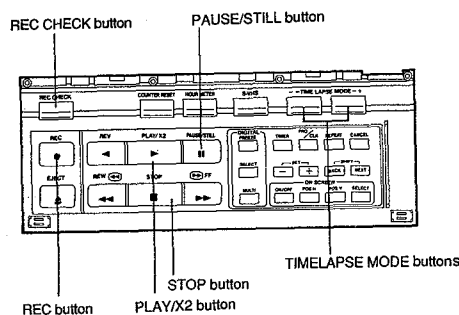
- To prevent accidental recording on a recorded cassette, remove its safety tab.
- To record on it later, cover the hole with adhesive tape.



# RECORDING

## BASIC PROCEDURE

- Connect necessary components correctly. *See* p.13.
  - Set the VIDEO MODE and INPUT SELECT switches as required.
1. Load a cassette with safety tab in place.
  2. If you're using an S-VHS cassette, press S-VHS to select VHS or S-VHS as required.
  3. Press TIMELAPSE MODE +/- to select the recording mode.
    - The recording mode will appear on the FDP.
  4. Press REC to start recording.
    - To verify picture quality during recording, press REC CHECK. The tape will rewind a short distance, play back the last recorded segment, then resume recording.
  5. To temporarily stop recording, press PAUSE/STILL.
    - The recorder will enter the Record-Pause mode. If the recorder remains in this mode for more than 5 min. 25 sec., it will automatically enter the Stop mode.
  6. To re-start recording, press PLAY/X2.
  7. To end recording, press STOP.

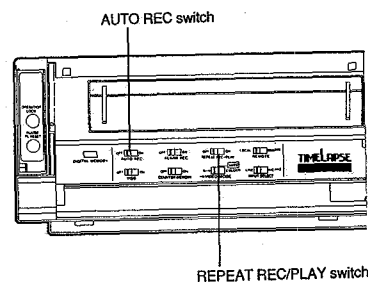


### Repeat Recording

Set the REPEAT REC/PLAY switch to ON. The recorder will automatically rewind the tape at tape end (regardless of the setting of the On-Screen Setup Menu item "AUTO REW"), and start recording again from the beginning.

### Automatic Start of Recording After Power Failure

Set the AUTO REC switch to ON. If a power failure occurs during recording, recording will re-start automatically when power is restored. The recording mode will be the same as when power was lost.

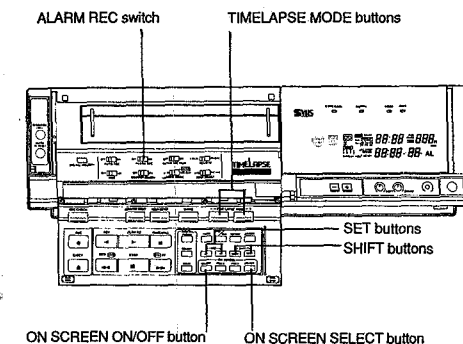


## ALARM RECORDING

Alarm recording allows the recorder to automatically switch to the pre-selected 3-hour (SP) or 6-hour (LP) continuous recording mode when an alarm signal is received via the rear panel ALARM IN/COM terminals. Recording will continue for the pre-selected duration.

- Connect necessary components correctly. *See* p.13.

1. Press ON SCREEN ON/OFF to activate the on-screen display.
2. Press ON SCREEN SELECT to call up on-screen page 5.
3. Press SHIFT BACK/NEXT to select "ALARM MODE".
4. Press SET +/- to set SP or LP.
  - Alarm recording will take place in the selected mode.
5. Press SHIFT BACK/NEXT to select "ALARM TIME".
6. Press SET +/- to set the alarm recording duration.
  - Selectable from 8 settings. If set to "TAPE E", alarm recording continues until the end of the tape is reached. If set to "MANUAL", alarm recording continues as long as the alarm signal is being input. Use this position if you use a type of alarm sensor which outputs pulses continuously until it resets to normal.
7. Press SHIFT BACK/NEXT to select "ALARM BUZ".
8. Press SET +/- to set ON or OFF.
  - If set to ON, the built-in electronic buzzer signals the start of alarm recording.
9. Press ON SCREEN ON/OFF to cancel the on-screen display.
10. Set the ALARM REC switch to ON.
11. Press TIMELAPSE MODE +/- to select the recording mode.
12. Press REC to start recording.



(ALARM MODE)	SP
(ALARM TIME)	5 SEC
(ALARM BUZ)	OFF
(END BUZ)	OFF
(1 SHOT FIELD)	2

On-screen page 5

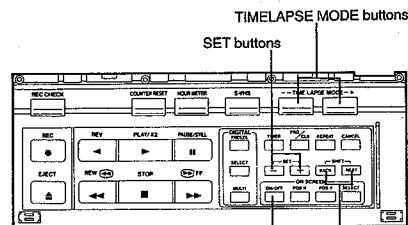
### NOTES:

- An index code is recorded when the recorder switches from Timelapse to Alarm Recording.
- Alarm recording is not possible in the one-shot recording mode.
- If alarm recording is engaged in timer recording, alarm recording will stop at the preset timer-stop time.

## ONE-SHOT FIELD RECORDING

In normal timelapse recording one field is recorded at a time. One-shot field recording gives you greater flexibility by allowing you to choose how many fields are to be recorded at one time.

1. Press ON SCREEN ON/OFF to activate the on-screen display.
2. Press ON SCREEN SELECT to call up on-screen page 5.
3. Press SHIFT BACK/NEXT to select "1 SHOT FIELD".
4. Press SET +/- to set number of fields to be recorded.
  - Selectable from 1, 2, 5, and 10 fields. The recording interval is 0.32 seconds (corresponds to 48-hour mode).
5. Press ON SCREEN ON/OFF to cancel the on-screen display.
6. Set the recording time to "003H" (SP mode) with TIMELAPSE MODE +/- buttons and press REC to engage the Record mode.
7. Set the recording time to "000H" (one-shot recording mode) with TIMELAPSE MODE +/- buttons during recording.
8. Press PAUSE/STILL to engage the Record-Pause mode.
9. To start one-shot field recording, press PAUSE.
  - The designated number of fields are recorded and the recorder enters the Record-Pause mode.
  - You can also start one-shot recording by connecting an external switch to the 1 SHOT IN/COM terminals on the rear panel.
10. To cancel one-shot recording, press STOP or set to a recording time other than "000H". If the Record-Pause mode continues for more than 3 minutes, the recorder automatically restarts the current one-shot recording.



ON SCREEN ON/OFF button

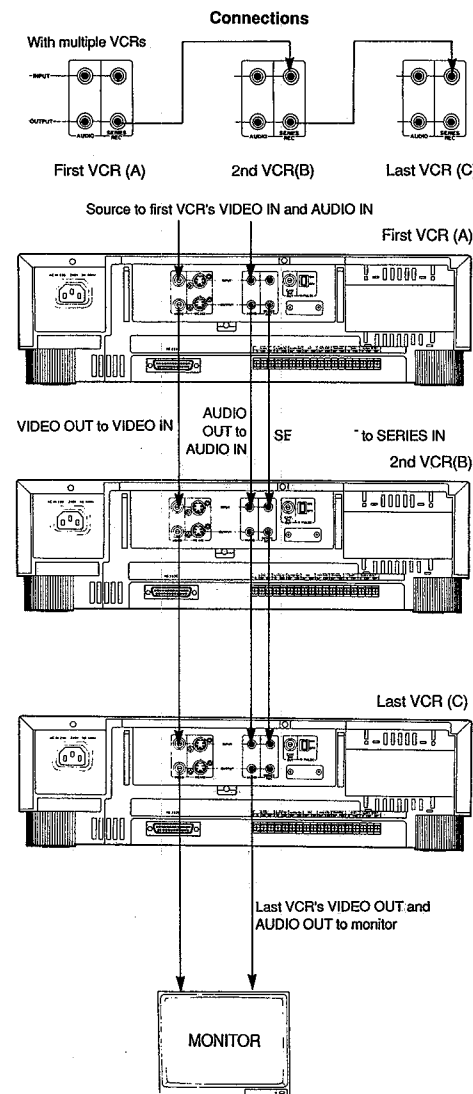
(ALARM MODE)	SP
(ALARM TIME)	5 SEC
(ALARM BUZ)	OFF
(END BUZ)	OFF
(1 SHOT FIELD)	2

On-screen page 5

## SERIES RECORDING

By connecting several BR-S925E/920Es in series you can obtain in-depth coverage over a long period of time.

1. Engage the On-Screen Setup Menu and set SERIES REC to "ON" for all connected recorders. (p.12)
2. Set all recorders (except A) in the Stop mode.
3. Operate Recorder A for recording.  
When Recorder A reaches tape end, it will transmit a series control command to Recorder B. Recorder B will start recording.



### NOTES:

- A series control command can be accepted while the recorder is in the Rewind mode. In this case, recording will start once rewind is completed.
- Do not put Recorder B (and subsequent ones) in the Play, Still, Record, or Record-Pause mode.
- Series operation will stop if the series control command is delivered to an unloaded VCR. Be sure that cassettes are loaded in all connected VCRs.
- Series operation can be cancelled at any time by pressing the currently-operating VCR's STOP button.

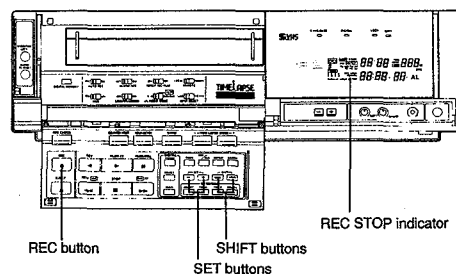
(Be sure to terminate the signals at the monitor with a 75-ohm terminating connector.)



## INSTANT TIMER RECORDING (OFF-TIMER)

You can set the VCR to automatically stop recording and shut off after a specified timespan.

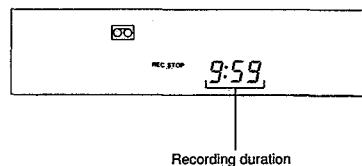
1. Press REC while in the Record mode to activate the off-timer.
  - "REC STOP" lights on the display panel. Recording duration is set at "0:30" (30 minutes).
  - The off-time can be delayed in 30-minute increments (up to 9 hours) by pressing REC.
  - If the end of the tape is reached during recording, the cassette is ejected and power turned off.



### Off-Time Setting in 1-Minute Increments

Once the off-timer has been activated, the off-time can be set more precisely (up to 9 hours, 59 minutes). Incremental setting is not possible with the On-Screen Setup Menu activated. After step 1:

2. Press SHIFT NEXT or BACK.
3. Press SET to set the hour, and press SHIFT NEXT.
4. Press SET to set the minute, and press SHIFT NEXT.
  - Make entries within 10 seconds at each step.
5. Press REC to end setting.
  - The digits will stop blinking.



### NOTES:

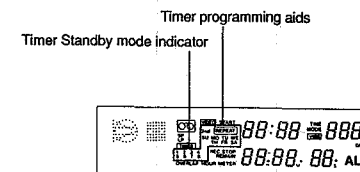
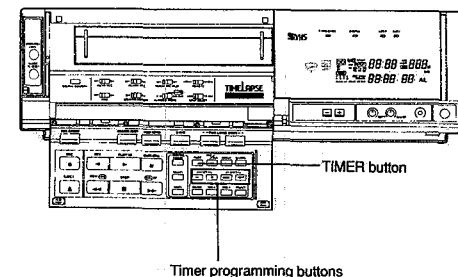
- Instant timer recording has priority over programmable timer recording. Be sure that the preset times do not overlap.

## PROGRAMMABLE TIMER RECORDING

Unattended start and stop of recording is possible using the 14-day/8-event programmable timer.

- For timer programming procedures, see p.25.
- Make necessary preparations for connected components.

1. Load a cassette with safety tab in place.
2. Program the timer with the SET and SHIFT buttons. see p.25.
3. Press the TIMER button to enter the Timer Standby mode.
  - "TIMER" and program number(s) appear on the display panel.
  - Recording will start at the preset time, and stop at the preset time.
  - If the end of the tape is reached during recording, the cassette is ejected and power turned off.



### NOTES:

- If you need to use the VCR while it is in the Timer Standby mode, press TIMER and then POWER. After using the VCR, be sure to press TIMER to engage the Timer Standby mode.

# TIMER PROGRAMMING

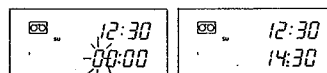
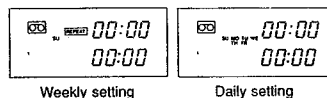
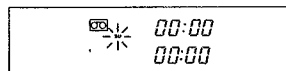
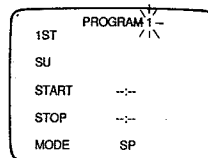
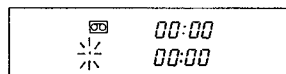
This section describes timer programming procedure only. To activate timer recording, see p.24.

## PROCEDURE

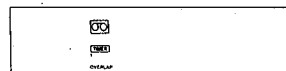
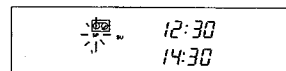
- Turn on the VCR
- 1. Press PRG/CLK to engage the Timer Set mode.
  - Program 1 will blink on the FDP.
  - To advance to another program, select a program number with SET +/-.
  - Data can also be displayed on-screen. Supply a composite video signal to the video input connector for on-screen display.
- 2. Press SHIFT NEXT.
  - "SU" will blink on the FDP.
- 3. Enter the day with SET +/-.
- The day of the week changes from 1st week to 2nd week (eg. "SU", "MO"... "2nd SA", "2nd SU")
- For weekly setting, press REPEAT. "REPEAT" will appear above the day.
- For daily setting, press SET +/- until the desired option appears. ("SU"... "SA", "MO"... "SA", "MO"... "FR")
- 4. Press SHIFT NEXT to advance to the next step.
- 5. Enter the start time with SET +/- and SHIFT NEXT.
- 6. Enter the stop time with SET +/- and SHIFT NEXT.
- 7. Select the recording mode with TIMELAPSE MODE +/-.
- 8. Press PRG/CLK to end programming.
  - To immediately engage the Timer Standby mode, press TIMER.
  - Before engaging the Timer Standby mode, make sure that the timelapse recording mode is set as required.

### NOTES:

- "1st week" and "2nd week" do not refer to calendar weeks. The 1st week refers to the seven-day period beginning with the present day and the 2nd week refers to the subsequent seven-day period. These two weeks are counted from the time of setting.
- If the "OVERLAP" indication appears on the FDP when the TIMER button is pressed, it means that the start and stop times of two or more programs overlap. Check the timer data and correct as necessary. If overlapping programs are not corrected, the second program will not start until the first one is completed.



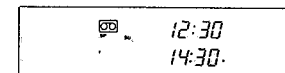
Blinking item is ready to be set.



OVERLAP indicator

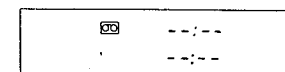
### Checking timer data

1. Press PRG/CLK in the Timer Standby mode.
  - Timer data for program 1 appears on the display panel for 5 seconds, followed by program 2, and so on.
  - To advance the data display manually, press SET.
2. Check the data.
  - To return to the Clock mode, press PRG/CLK. The Clock mode is returned to automatically if no action is taken for 60 seconds.



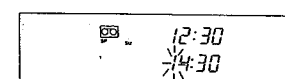
### Cancelling timer data

- Cancel the Timer Standby mode.
- 1. Press PRG/CLK.
  - Timer data for program 1 appears on the display panel.
- 2. Press SET to select the program you wish to cancel.
- 3. Press CANCEL.
  - Programmed data is cleared from memory.



### Correcting timer data

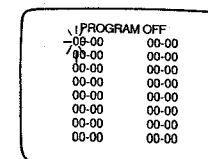
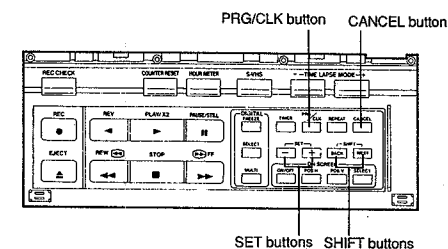
- After step 1:
2. Press SET +/- to select the program number you wish to correct.
  3. Press SHIFT NEXT or BACK to move to the item to be corrected and enter new data with SET.



### Program Cancel mode

When you've set the timer for weekly or daily repeat recording, you may wish to cancel recording on specified days falling within the preset period. With the Program Cancel function, you can set the timer not to record on up to 14 specified days during the year.

1. Press CANCEL and hold it for at least 5 seconds. Then press PRG/CLK within 5 seconds.
  - The following display appears on-screen with day digits blinking.
  - The display panel also changes to the Program Cancel mode.
2. Set the date(s) where recording is not to take place with the SET and SHIFT buttons.
  - To cancel a preset date, press either SHIFT button until the relevant digits are blinking and press CANCEL.
3. Press PRG/CLK to return to the normal display mode.



### NOTES:

- Program Cancel data (day and month) will remain even after the year is advanced.
- Year setting is not possible.

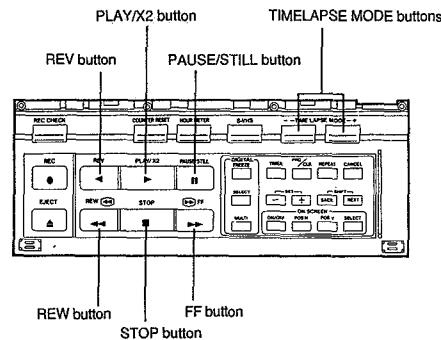
# PLAYBACK

## BASIC PROCEDURE

1. Load a cassette.
  - If the safety tab on the cassette is removed, playback starts automatically.
2. Press TIMELAPSE MODE +/- to select the appropriate playback mode.
3. Press PLAY/X2 to start playback.
  - Adjust the picture as required with the SHARPNESS control.
4. Press STOP to stop playback.

### NOTES:

- The recorder is preset to automatically stop when the end of the tape is reached. If you want the recorder to rewind at tape end, set "AUTO REW" to "ON" via On-Screen Setup Menu page 6, p.12
- If the REPEAT REC/PLAY switch is set to ON, playback will start again automatically from the beginning.
- Do not engage the DIGITAL MEMORY button when playing back a copy-protected tape. (BR-S925E only)



## STILL AND FIELD ADVANCE

- Press PAUSE/STILL while in the Play mode to view a still picture.
- Press PAUSE/STILL while in the Still mode to advance the picture field by field (SP mode only).
- Press PLAY/X2 to return to the original playback mode.

### NOTES:

- To protect the tape, the Still mode is automatically cancelled after about 5 minutes.

## SHUTTLE SEARCH

- Press REW while in the Play mode for high-speed reverse search at 9 times normal speed.
- Press FF while in the Play mode for high-speed forward search at 9 times normal speed.
- Press PLAY/X2 to return to the original playback mode.
- For brief searching, hold REW or FF depressed; releasing the button returns to the original playback mode.

## BASIC PROCEDURE

1. Load a cassette.
  - If the safety tab on the cassette is removed, playback starts automatically.
2. Press TIMELAPSE MODE +/- to select the appropriate playback mode.
3. Press PLAY/X2 to start playback.
  - Adjust the picture as required with the SHARPNESS control.
4. Press STOP to stop playback.

## DOUBLE-SPEED PLAYBACK

- Press PLAY/X2 while in the SP or LP mode to engage the Double-Speed mode.
- Press PLAY/X2 to return to the original playback mode.
- In timelapse playback, pressing PLAY/X2 engages the SP mode. Press again for Double-Speed playback. Timelapse Play → SP → Double-Speed Play → Timelapse Play ...

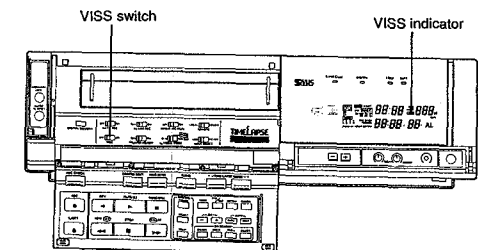
## REVERSE PLAYBACK

- Press REV while in the Play mode for reverse playback at normal speed.
- Press PLAY/X2 to return to the original playback mode.

## VISS INDEX SEARCH (ALARM SEARCH)

This function gives you quick access to the nearest index code in either direction. The recorder automatically marks index codes at the beginning of each recording initiated from the Stop or Timer Standby mode, as well as at the beginning of each alarm recording. You'll be able to access alarm recordings automatically when playing back tapes recorded with the ALARM REC switch set to ON.

1. Set the VISS switch to "ON".
2. Press FF or REW in the Play, Still, or Stop mode.
  - VISS Index Search/Alarm Search will start in the corresponding direction. The "VISS" indication on the FDP will light.
  - If Index Search/Alarm Search was started from the Play or Still mode, the screen will show search pictures and playback will start automatically when the index code is located.
  - If Index Search/Alarm Search was started from the Stop mode, then the index code is detected in the Rewind or Fast-Forward mode. The tape stops when the index code is located.
3. To cancel VISS Index Search/Alarm Search, press STOP.

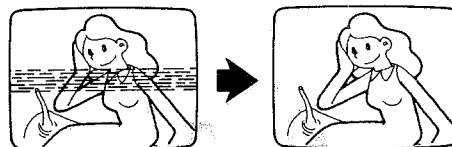
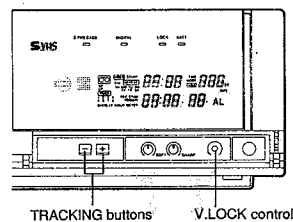


### NOTES:

- This function will not operate during rewind in Auto Rewind mode and Repeat Recording/Playback mode.

## TRACKING CONTROL

- To minimise noise bars that may appear on-screen during playback, press either TRACKING button until the best possible picture is obtained.
- To reset tracking to normal, press both TRACKING buttons simultaneously.
- To adjust tracking during still playback, press PAUSE/STILL a few more times to minimise noise bars.



## V. LOCK ADJUSTMENT

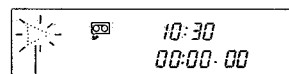
Vertical jitter in still pictures can be corrected with the V. LOCK control.

- Turn in either direction to minimise jitter.

## NEXT-FUNCTION MEMORY

You can specify the mode you want to enter after rewind (Play, Timer Standby, Eject or Power Off) immediately after pressing the REW button.

1. Press REW while in the Stop mode.
2. Press the corresponding button (PLAY/X2, TIMER, EJECT, or POWER) within 2 seconds.
  - At completion of rewind, the selected mode is entered automatically.
  - During rewind, the corresponding indicator (PLAY, TIMER, "Cassette loaded" indicator, or POWER button's LED) blinks.
  - To cancel the memory during rewind, press STOP for Play Memory, STOP, PLAY/X2, FF, or REW for Eject Memory, TIMER or POWER for Timer Standby Memory, or POWER for Power Off Memory.



Blinks during rewind  
(for Play memory).

## DIGITAL PLAYBACK (BR-S925E)

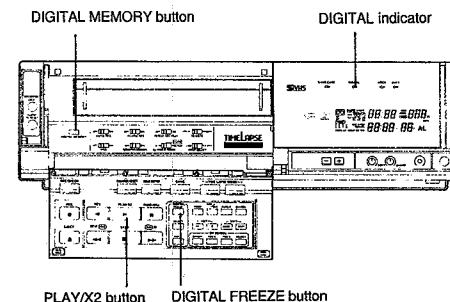
The BR-S925E incorporates a digital memory and circuitry for digital effects. (The Digital mode is preset at the factory.)

## DIGITAL PLAY

1. Check that the VCR is in the Digital mode. If not, press DIGITAL MEMORY to activate the digital memory.
  - The DIGITAL indicator will light.
2. Press PLAY/X2.
  - Playback will start and timebase-corrected signals will be delivered to the monitor.

### NOTES:

- Do not press the DIGITAL MEMORY button when playing back a copy-protected tape.
- When a blank tape is played back, a still image of the previous playback picture or EE picture can be displayed.



## DIGITAL FREEZE

1. To display a still image from digital memory, press FREEZE.
  - If pressed in the Digital Play mode, the digital still image is output while the tape continues to run. Output of the digital still also continues if the STOP button is pressed to engage the Stop mode.
  - If pressed in the Still mode (engaged with PAUSE/STILL), the digital still image is output while the VCR is in the Still mode. If the Still mode continues for more than about 5 minutes, the recorder will enter the Stop mode, but the digital still image will continue to be displayed on the monitor.
2. To cancel the Freeze mode, press DIGITAL FREEZE again, press PAUSE/STILL or press the DIGITAL MEMORY button.

## QUAD DISPLAY AND SKIP PLAY

In order to use these functions effectively, tapes must be recorded in a multi-camera system via a sequential camera switcher. Two items on the On-Screen Setup Menu must also be set correctly in recording and playback.

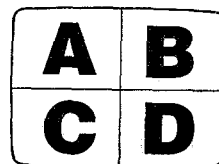
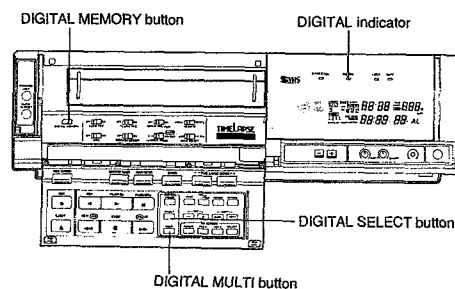
- Before recording, call up On-Screen Setup Menu page 6 and select "CAM SW". This determines the interval at which the sequential camera switcher switches from one camera to another. For effective Quad Display and Skip Play, set this item either to "1 FIELD" or "1 FRAME". *See* p.12.
- Before playback, call up the On-Screen Setup menu page 6 and select "SKIP MODE". This determines how many fields should be skipped for continuous display of a single camera picture. Set according to the number of cameras (up to 16).

### NOTE:

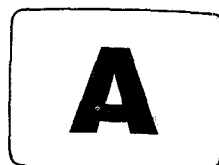
- These functions cannot be used when On-Screen Setup Menu item "SKIP MODE" is set to "1".
- These functions cannot be used in Timelapse Play or Field-advance. Effective only in the SP or LP mode.

(AUTO REW)	OFF
(CAM SW)	OFF
(SERIES REC)	OFF
(SKIP MODE)	1

On-screen page 6



Quad Display



Picture in the top left window is displayed.

### Quad Display

- Press DIGITAL MEMORY and start playback.
- Press MULTI to activate the Quad Display mode.
  - Pictures from four cameras will be simultaneously displayed in separate windows on a single screen.
  - The DIGITAL indicator will blink.
- Press SELECT to advance the pictures through the windows.
  - When more than four cameras have been used, a new camera picture appears in the bottom right window.

### Skip Play

- Press MULTI while in the Quad Display mode.
  - The camera picture in the top left window is displayed successively in full-screen.
- Press SELECT to select a different camera picture.
- To return to the Digital Play mode, press MULTI again.

## TROUBLESHOOTING GUIDE

### POWER AND TAPE TRANSPORT PROBLEMS

Symptoms	Check points
Clock is functioning normally, but the VCR power cannot be turned on.	<ul style="list-style-type: none"> <li>Is "TIMER" displayed on the display panel?                             <ul style="list-style-type: none"> <li>Press the TIMER button to cancel the Timer-Standby mode.</li> </ul> </li> </ul>

### RECORDING PROBLEMS

Symptoms	Check points
Recording will not start.	<ul style="list-style-type: none"> <li>Is the cassette loaded?</li> <li>Has the cassette's safety tab been removed?                             <ul style="list-style-type: none"> <li>Reseal the slot with adhesive tape.</li> </ul> </li> </ul>
Timer recording is not possible.	<ul style="list-style-type: none"> <li>Have you set the clock and programmed the timer correctly?                             <ul style="list-style-type: none"> <li>Check again.</li> </ul> </li> <li>Is "TIMER" displayed on the display panel?                             <ul style="list-style-type: none"> <li>If not, press the TIMER button to display "TIMER".</li> </ul> </li> </ul>

### PLAYBACK PROBLEMS

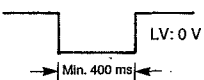
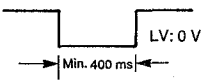
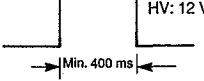
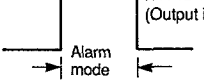

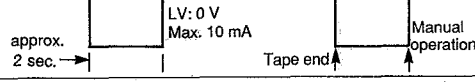

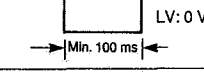
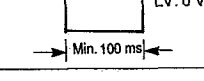
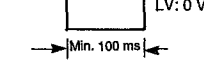
Symptoms	Check points
Tape is running but there is no playback picture.	<ul style="list-style-type: none"> <li>Is the monitor's input select switch set correctly?</li> <li>If you are using a TV receiver via AV connection, is it set to the "AV" mode?                             <ul style="list-style-type: none"> <li>If not, set it to the "AV" mode.</li> </ul> </li> </ul>
Noise and jitter problems.	<ul style="list-style-type: none"> <li>Refer to "TRACKING CONTROL" and "V. LOCK ADJUSTMENT" <i>See</i> p.29.</li> </ul>
Displayed picture of input signal changes during Quad Display or Skip Play.	<ul style="list-style-type: none"> <li>Does the setting of On-Screen Setup Menu item "SKIP MODE" match the setting used in recording?                             <ul style="list-style-type: none"> <li>Set it to match.</li> </ul> </li> <li>Has On-Screen Setup Menu item "SKIP MODE" been set to match the number of cameras?                             <ul style="list-style-type: none"> <li>Set it to match the number of cameras.</li> </ul> </li> <li>Has On-Screen Setup Menu item "CAM SW" been set to "1 FIELD" or "1 FRAME"?                             <ul style="list-style-type: none"> <li>Set to "1 FIELD" or "1 FRAME".</li> </ul> </li> </ul>

### OTHERS

Symptoms	Check points
Timer setting is not possible.	<ul style="list-style-type: none"> <li>Has the clock been set?                             <ul style="list-style-type: none"> <li>Set the clock.</li> </ul> </li> </ul>
VISS Index Search does not function.	<ul style="list-style-type: none"> <li>Is the VISS switch set to ON?                             <ul style="list-style-type: none"> <li>Set to ON.</li> </ul> </li> </ul>



## INPUT/OUTPUT TERMINAL SIGNAL LEVELS

Terminals	Signal level	Remark
ALARM IN	 LV: 0 V Min. 400 ms	Input at ground level
ALARM OUT	 LV: 0 V Min. 400 ms	Through out of input signal
ALARM RST IN	 HV: 12 V - 5 V Min. 400 ms	Input at high level
ALARM REC OUT	 HV: 12 V (Output impedance: 4700 ohms) Alarm mode	Output at high level
REC OUT	 HV: 12 V (Output impedance: 4700 ohms) Recording	Output at high level
TAPE END OUT	 LV: 0 V Max. 10 mA Tape end Manual operation	Output at ground level
WARNING OUT	 HV: 12 V (Output impedance: 4700 ohms) Warning Warning reset	Output at high level
1 SHOT REC IN	 LV: 0 V Min. 100 ms	Input at ground level
CLOCK RESET IN	 LV: 0 V Min. 100 ms	Input at ground level
CLOCK RESET OUT	 LV: 0 V Min. 100 ms	Output at ground level

## RS-232C 25-PIN SERIAL REMOTE CONTROL INTERFACE (BR-S925E)

### SPECIFICATIONS

Pin No.	Signal	Subject	Direction of signals
1	FG	FRAME GROUND	
2	TXD	TRANSMIT DATA	VTR → COMPUTER
3	RXD	RECEIVE DATA	VTR ← COMPUTER
6	DSR	DATA SET READY	VTR ← COMPUTER
7	GND	SIGNAL GROUND	
20	DTR	DATA TERMINAL READY	VTR → COMPUTER

Output level — ON: more than +5 V  
OFF: less than -5 V

### DATA FORMAT

Mode : Non-synchronised  
Character length : 8 bits  
Parity check : None  
Stop bit : 1 bit  
Data rate : 600, 1200, 2400, 4800, 9600 bps  
(Selectable with DIP switch setting)

### RS-232C PROTOCOL

#### JVC BASE TABLE

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				Data "0"	ENTER											
1	COMPLETION			Data "1"	CLEAR ERROR											
2	ERROR			Data "2"											COUNT RESET	
3	CASSETTE OUT			Data "3"							EJECT					
4				Data "4"												
5	NOT TARGET			Data "5"												
6				Data "6"		CLEAR										JVC TABLE 1 ON
7				Data "7"										STATUS SENSE		JVC TABLE 1 OFF
8				Data "8"												
9				Data "9"												
A	ACK			PLAY	REV PLAY								REC			REC/DUB REQUEST
B	NAK										FF		REC PAUSE			VTR INQ
C											REW					
D											F-FIELD STEP					
E																
F				STOP	STILL											

JVC TABLE 1

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0 (RETURN CODE)				Data "0"	ENTER		TIMER ON	ON SCREEN ON	DIGITAL ON					FRAME CODE (COUNT)		
1 COMPLETION				Data "1"	CLEAR ERROR		TIMER OFF	ON SCREEN OFF	DIGITAL OFF					FRAME CODE (COUNT)		
2 ERROR				Data "2"			PRG/CLK	POS H +	DIGITAL MULTI				CUE UP WITH DATA		COUNT RESET	
3 CASSETTE OUT				Data "3"			SHIFT +	POS V +	DIGITAL FREEZE		EJECT	SEARCH (VISS)				
4				Data "4"			SHIFT -	ON SCREEN SELECT	DIGITAL SHIFT							
5 NOT TARGET				Data "5"			SET +						F-SHUTTLE			
6				Data "6"		CLEAR	SET -						R-SHUTTLE		TL STATUS SENSE	
7				Data "7"			CANCEL								STATUS SENSE	
8				Data "8"			REPEAT									
9				Data "9"												
A ACK				PLAY									REC			REC/DUB REQUEST
B NAK								POWER ON		FF			REC PAUSE			VTR INQ
C								POWER OFF		REW						
D								MODE SHIFT		F-FIELD STEP						
E								MODE		R-FIELD STEP						
F				STOP	STILL											

## SPECIFICATIONS

### GENERAL

Power requirement : AC 220 — 240 V  
 Power consumption : 35 W (BR-S920E), 41 W (BR-S925E)  
 Dimensions : 435 (W) X 124 (H) X 370 (D) mm  
 Weight : 10 Kg

### Temperature

Operating : 5°C to 40°C  
 Storage : -20°C to 60°C

Operating humidity : 30% to 80%

Format : S-VHS Europe standard

Tape speed : 23.39 mm/sec  
 (SP, TL), 11.70 mm/sec (LP)

### Recording and

playback time : 3 (VHS SP/S-VHS SP), 6 (VHS LP/S-VHS LP), 24, 48, 72, 120, 168, 240, 480, 960 hours (with E-180/SE-180 cassette)

### VIDEO

Signal system : PAL-type colour signal/PAL-type Y/C signal, CCIR monochrome signal, 625 line/50 field

### Recording system

Luminance : FM recording  
 Colour : Down-converted direct recording

### Input

Line : 0.5 to 2.0 Vp-p, 75 ohms, unbalanced  
 Y/C Y : 0.5 to 2.0 Vp-p, 75 ohms, unbalanced  
 C : 0.3 Vp-p, 75 ohms, unbalanced (Burst)

### Output

Line : 1.0 Vp-p, 75 ohms, unbalanced  
 Y/C Y : 1.0 Vp-p, 75 ohms, unbalanced  
 C : 0.3 Vp-p, 75 ohms, unbalanced (Burst)

Horizontal resolution : 400 lines (S-VHS, colour)

240 lines (VHS, colour)

300 lines (VHS, monochrome)

Signal-to-noise ratio : 43 dB (S-VHS/SP)

### AUDIO

Number of tracks : 1  
 Input : -8 dBs, unbalanced  
 Output : -6 dBs, unbalanced  
 Frequency response : 100 Hz to 8 kHz  
 Signal-to-noise ratio : 40 dB (SP at 3% distortion)  
 Wow and flutter : Less than 0.35% RMS

### TIME/DATE GENERATOR

Display : Day, month, year, hours, minutes, seconds, recording mode  
 Character size : 16 H  
 Power back up : Approx. one year

### ACCESSORIES

Provided accessories : "R6/AA/UM-3" battery X 3

\* For best results, use only JVC Professional S tape.

Design and specifications subject to change without notice.

# SECTION 1 DISASSEMBLY

## 1.1 REMOVAL OF EXTERNAL COVERS

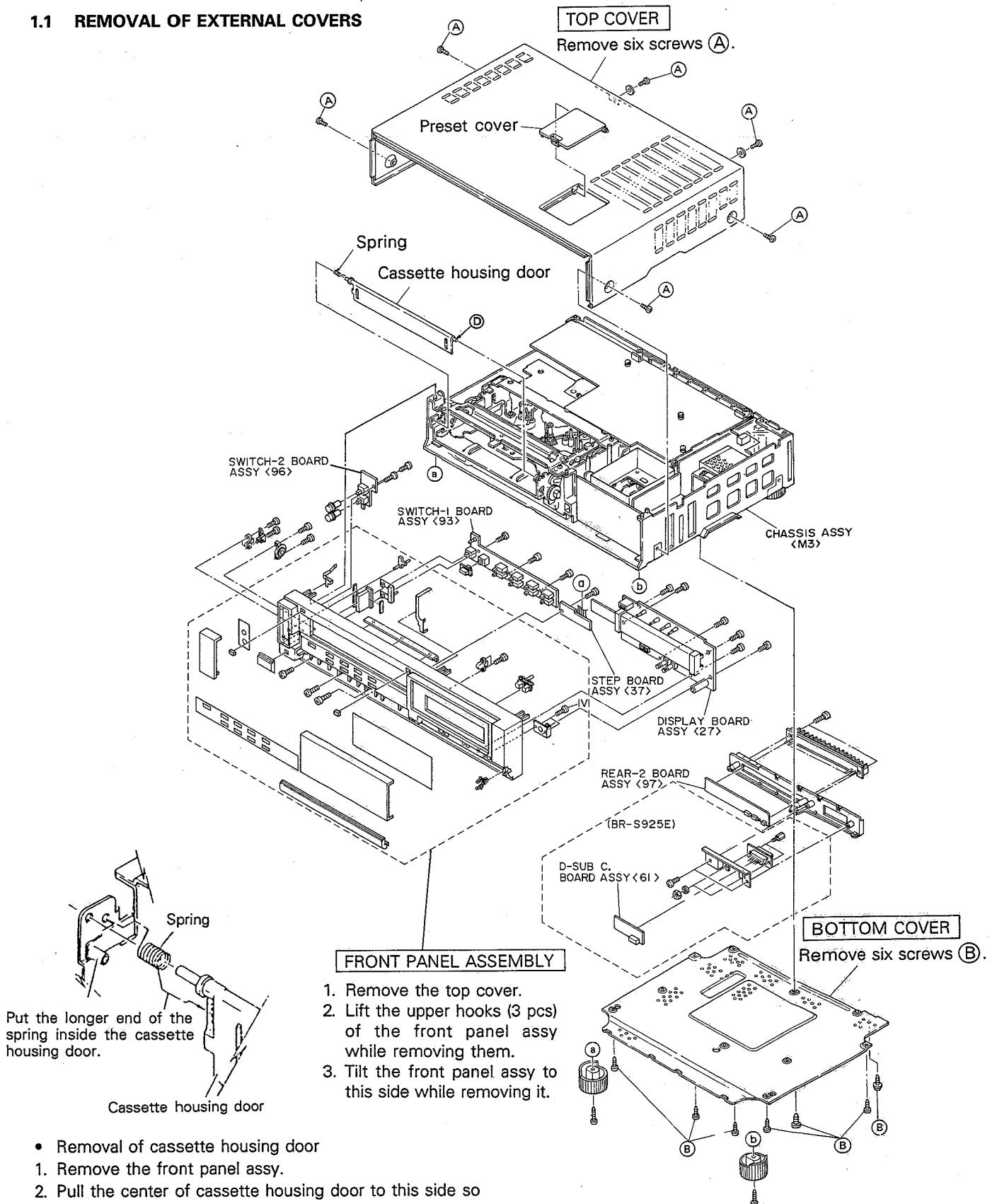


Fig. 1-1 Removal of external covers

- Removal of cassette housing door
1. Remove the front panel assy.
  2. Pull the center of cassette housing door to this side so that it bends slightly while detaching it by the portion (D).
  3. Remove the cassette housing door with care of the spring in the left side of it.

## 1.2 REMOVAL OF MAIN BOARDS

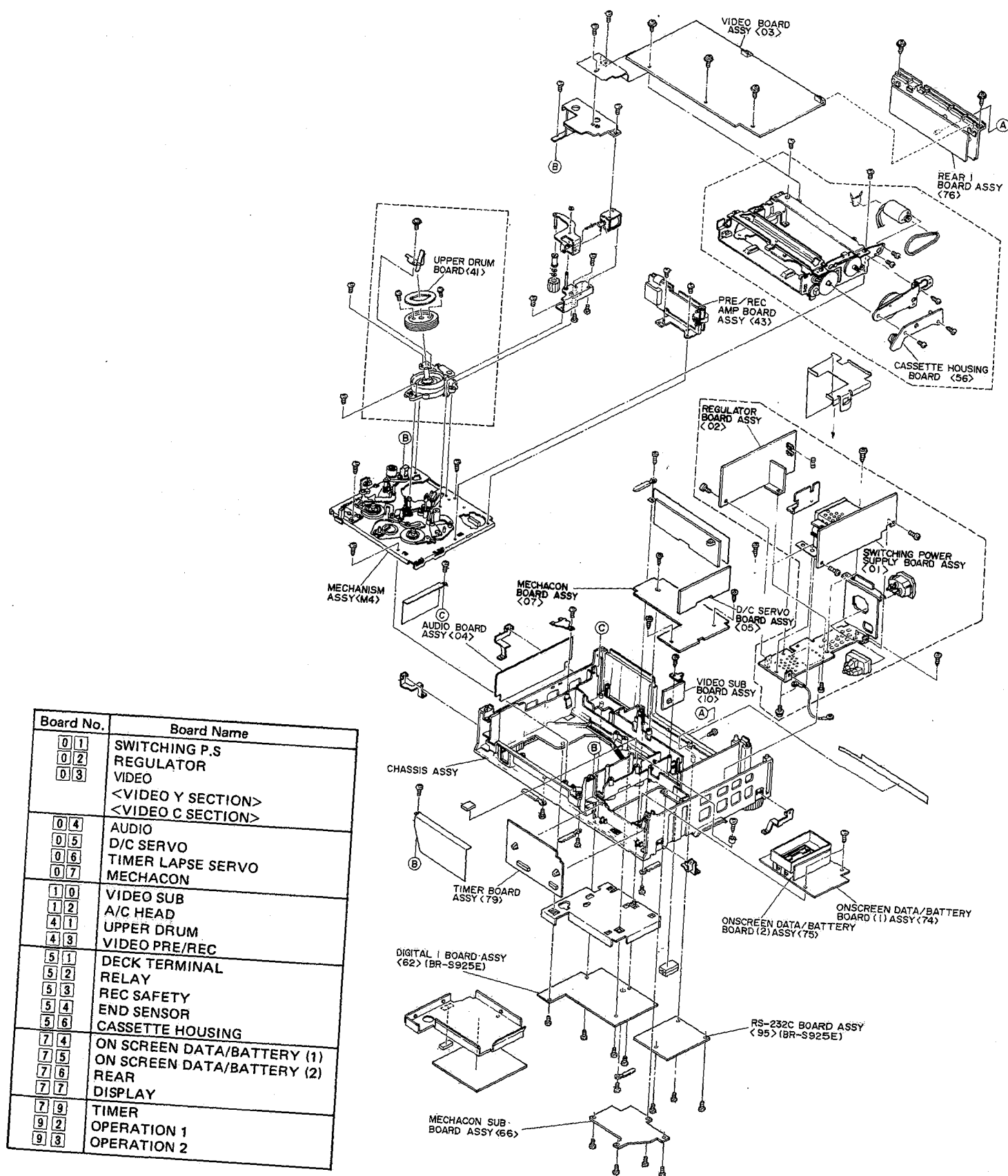


Fig. 1-2 Removal of main boards

### 1.3 REMOVAL OF VIDEO BOARD

For general maintenance of the VIDEO board, remove it according to the following procedure.

1. Remove three screws E from the VIDEO board.
2. Lift the VIDEO board as indicated by the arrow in the figure.

**Note:** Do not remove the screws marked by \* in the figure except in unavoidable circumstances.

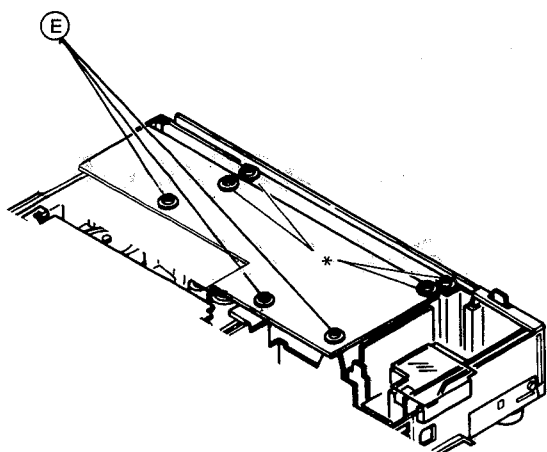


Fig. 1-3 Removal of A/V board (1)

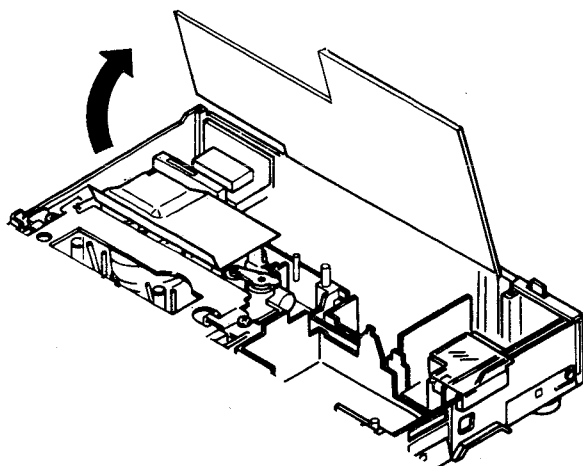


Fig. 1-4 Removal of A/V board (2)

# **SPECIFICATIONS OF RS-232C 25-P INTERACTIVE TERMINATION OF BR-S925 VIDEO CASSETTE RECORDER**

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## 1. SPECIFICATIONS

The D-Sub 25P connector of the BR-S925 conforms to the RS-232C standard.

### (1) RS-232C Specifications

Pin No.	Signal	Function	Direction of Signal
1	FG	Maintenance Ground	
2	TXD	Data Transmission	VTR → CPU
3	RXD	Data Reception	VTR ← CPU
6	DSR	Data Set Ready	VTR → CPU
7	GND	Signal Ground	
20	DTR	Data Termination Ready	VTR ← CPU

Output level

ON : More than +5 V

OFF : Less than -5 V

### (2) Data Format

Mode : Asynchronous

Character length : 8 bits

Parity check : None

Stop bit : 1 bit

Data rate : 600, 1200, 2400, 4800, 9600 bps (selectable by DIP switch on the rear panel)

#### • Structure

0 (space)	Start bit	D0	D1	D2	D3	D4	D5	D6	D7	Stop bit
1 (mark)										

### (3) DIP Switch Setting

Data rate (bps) is selectable by the DIP switch on the rear panel (when the main power is turned off).

	600 bps	1200 bps	2400 bps	4800 bps	9600 bps
SW1	ON	ON	ON	OFF	OFF
SW2	ON	ON	OFF	ON	OFF
SW3	ON	OFF	OFF	OFF	OFF

Note: The DIP switch is set for 9600 bps at shipment from the factory.

## **2. BR-S925, 25-PIN RS-232C COMMAND**

### **(1) RETURN Codes**

- **COMPLETION (01H)**

A return code to be transmitted with finish of INDEX SEARCH operation.

- **ERROR (02H)**

This code is returned when the VTR receives an unacceptable command in consideration of the context. Further commands won't be received by the VTR and it returns a status sense command. Input of CLEAR ERROR (41H) or CLEAR (56H) command cancels this mode.

To cancel a numeral data input following a numerical command such as VISS SEARCH, input CLEAR ERROR (41H). To clear the whole of the last input command, input CLEAR (56H).

- **CASSETTE OUT (03H)**

A return code to be transmitted with finish of cassette ejection.

- **NOT TARGET (05H)**

A return code to be transmitted when the desired address is not detected in the INDEX SEARCH operation.

- **ALARM INPUT (06H)**

A return code to be transmitted with reception of ALARM signal in the recording mode.

- **ACK (0AH)**

A return code to be transmitted when a defined command is received on a designated table regardless of operation mode.

- **NAK (0BH)**

A return code to be transmitted when an undefined command or a command inapplicable to the VTR is received.

### **(2) OPERATION commands**

- **Data "0" to "9" (30H to 39H)**

Used to input numerals for VISS FWD (B0H), VISS REV (B1H), MODE (7EH) and SEARCH [VISS] (B3H) commands.

- **PLAY (3AH)**

To set the VTR to PLAY mode.

- **STOP (3FH)**

To set the VTR to STOP mode.

- **ENTER (40H)**

Used as input end code to follow input numerals for VISS SEARCH, VISS FWD, VISS REV and MODE commands.

- **CLEAR ERROR (41H)**

To cancel a numeral data inputted last, or to clear an error mode.

- **REV PLAY (4AH)**

To set the VTR to -X1 PLAY mode.

- **STILL (4FH)**

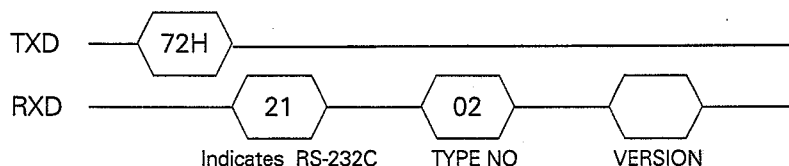
To set the VTR to STILL mode in playback, or to REC PAUSE mode in recording.

- **CLEAR (56H)**

Clear the present mode and set the VTR to STOP mode. Error mode is cleared, too.

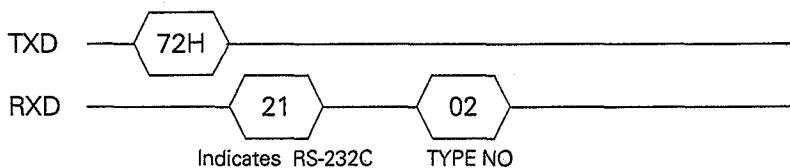


- **TIMER ON (60H)**  
To set TIMER mode to ON.
- **TIMER OFF (61H)**  
To set TIMER mode to OFF.
- **PRG/CLK (62H)**  
To set time and TIMER PRG SETTING mode.
- **SHIFT +, – (63H, 64H)**  
To shift time indication up and down in TIME SETTING and TIMER PRG SETTING modes.
- **SET +, – (65H, 66H)**  
To select setting data after completion of SHIFT operation.
- **CANCEL (67H)**  
To cancel input data for PRG SETTING and to set CANCEL PRG SETTING mode.
- **REPEAT (68H)**  
To select DAILY or WEEKLY mode for TIMER PRG SETTING.
- **OPE LOCK ON (69H)**  
To lock all operation keys of the VTR.
- **OPE LOCK OFF (6AH)**  
To release the VTR from OPE LOCK ON mode.
- **ON SCREEN ON (70H)**  
To set ON SCREEN DISPLAY (year/month/day, time, mode) to ON.
- **ON SCREEN OFF (71H)**  
To cancel ON SCREEN DISPLAY (year/month/day, time, mode) mode.
- **ROM VER (72H)**  
To return ROM version to manage RS-232C.



- **POS V+ (73H)**  
To move ON SCREEN display vertically.
- **ON SCREEN SELECT (74H)**  
To select contents of ON SCREEN display. (STATUS setting, AL/PL memory data display mode)
- **POS H+ (75H)**  
To move ON SCREEN display horizontally.
- **POWER ON (7BH)**  
To turn on the power.
- **POWER OFF (7CH)**  
To turn off the power.

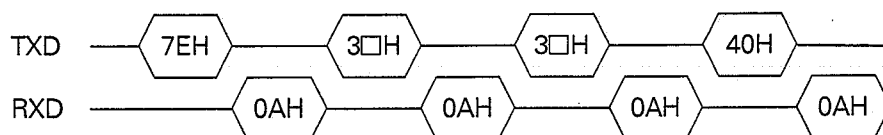
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- **TIMER OFF (61H)**  
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To turn off the power.

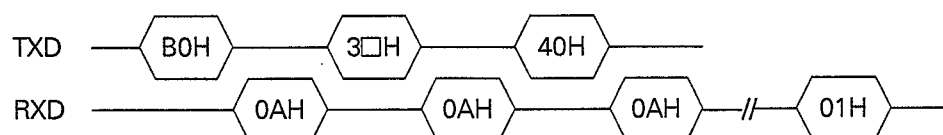
- **MODE SHIFT (7DH)**  
To shift REC/PB TIME MODE in sequence.

- **MODE (7EH)**  
To set REC/PB TIME MODE directly.



Mode	Input code	Mode	Input code	Mode	Input code	Mode	Input code
SP	30H 30H	48H	30H 34H	168H	30H 38H	960H	31H 33H
LP	30H 31H	72H	30H 35H	240H	30H 39H	1 SHOT	31H 35H
24H	30H 33H	120H	30H 37H	480H	31H 31H		

- **DIGITAL ON (80H)**  
To set the VTR to the DIGITAL mode.
- **DIGITL OFF (81H)**  
To cancel the DIGITAL mode.
- **DIGITAL FREEZE ON (82H)**  
To set the VTR to the DIGITAL FREEZE mode.
- **DIGITAL FREEZE OFF (83H)**  
To cancel DIGITAL FREEZE mode.
- **DIGITAL SHIFT (84H)**  
To shift SKIP PB picture one after another in DIGITAL mode.
- **DIGITAL MULTI (85H)**  
To select one of NORMAL, SKIP and QUADRISECT mode in DIGITAL mode.
- **EJECT (A3H)**  
To eject cassette. After cassette ejection, VTR outputs CASSETTE OUT (03H).
- **FAST FORWARD (ABH)**  
To set the VTR to FF mode, or to FWD SEARCH mode from playback.
- **REW (ACH)**  
To set the VTR to REW mode, or to REV SEARCH mode from playback.
- **F-FIELD STEP (ADH)**  
To forward one frame in the normal direction in STILL mode, and the mode continues.  
To set the mode to STILL from another mode.
- **VISS FWD (B0H)**  
To search in the forward direction up to a required INDEX point on tape. A required INDEX point can be designated numeral command (30H-39H). Search operation is carried out in F-SEARCH mode in playback, while it is done in FF-mode in STOP mode.

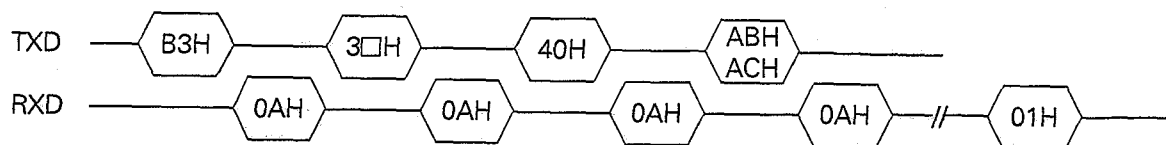


- **VISS REV (B1H)**

To do the same operation as VIS FWD (B0H) except the search direction, namely, search operation in the reverse direction.

- **SEARCH [VISS] (B3H)**

To search a required INDEX point on tape. A required INDEX point can be designated with numeral command (30H-39H).



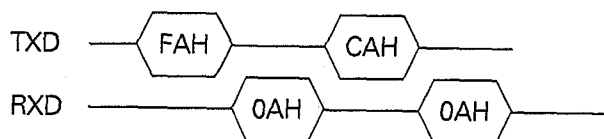
- **1 SHOT INPUT (BDH)**

In 1SHOT REC mode, 1 SHOT REC operation is performed every time this command is inputted.

- **REC (CAH)**

When this command is transmitted following REC/DUB REQUEST (FAH) command, operation mode is shifted to REC mode. However, there is no REC TAB input, NAK (0BH) is returned. To cancel the mode shifted by this command, transmit REC PAUSE (FAH+CBH) or STOP command.

Example : To perform recording



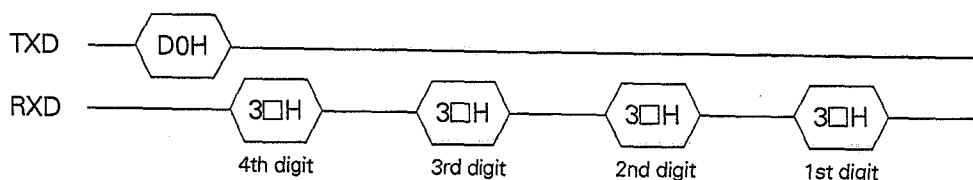
- **REC PAUSE (CBH)**

When this command is transmitted following REC/DUB REQUEST (FAH) command, operation mode is shifted to REC STANDBY mode. However, there is no REC TAB input, NAK (0BH) is returned. To cancel the mode shifted by this command, transmit REC PAUSE (FAH+CBH) or STOP command.

### (3) SENSE Commands

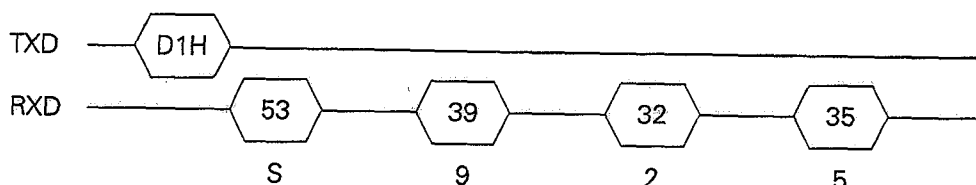
- **COUNT CODE (D0H)**

To return counter value.



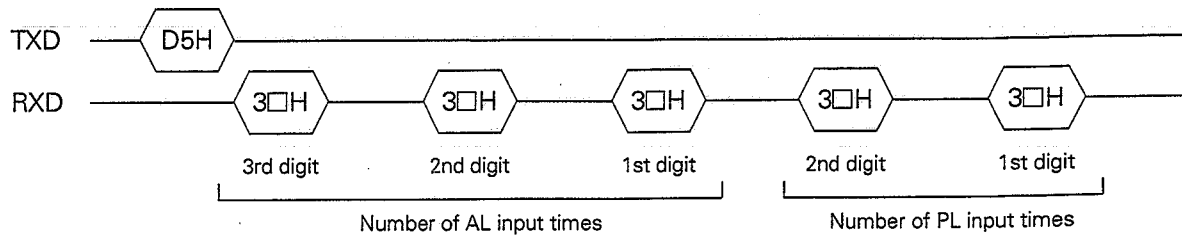
- **DEVICE TYPE (D1H)**

To return identity information of connected VTR in ASCII code.



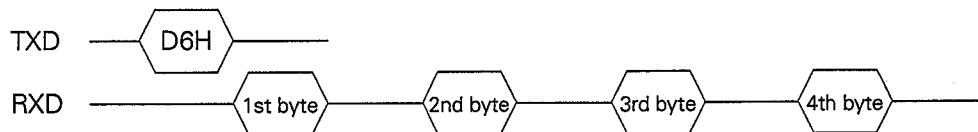
• **PA/AL COUNT SENSE (D5H)**

To return number of times of PL/AL input.



• **TL STATUS SENSE (D6H)**

To return status data related to TIME LAPSE mode.



1st byte : Returns REC/PLAY TIME mode data.

2nd byte :

Mode	Data	Mode	Data	Mode	Data	Mode	Data
SP	30H 30H	48H	30H 34H	168H	30H 38H	960H	31H 33H
LP	30H 31H	72H	30H 35H	240H	30H 39H	1 SHOT	31H 35H
24H	30H 33H	120H	30H 37H	480H	31H 31H		

3rd byte : Returns respective mode setting data.

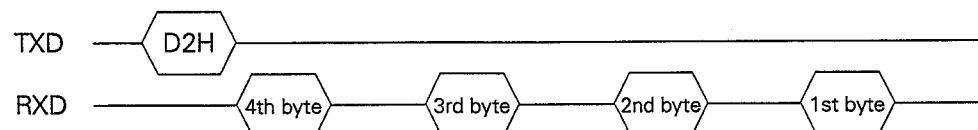
Bit	Status information
0	In NEXT FUNCTION MEMORY mode
1	POWER ON
2	AUTO REC MODE ON
3	AUTO REWIND MODE ON
4	In OPERATION LOCK
5	SERIOUS REC MODE ON
6	TAPE END BUZ ON
7	ALARM BUZ ON

4th byte : Returns respective mode statuses.

Bit	Status information
0	In ALARM REC mode
1	"High" with ALARM REC switch ON
2	"High" in DIGITAL mode ON
3	
4	
5	
6	
7	

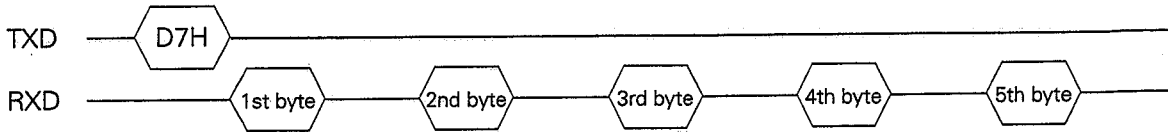
• **HOURLY METER SENSE (D2H)**

To return status data related to HOURLY meter.



- **STATUS SENSE (D7H)**

VTR status information is returned in 5 bytes.



#### (4) Other Commands

- **AL/PL RESET (E1H)**

To reset AL/PL memory data and number of input times.

- **COUNT RESET (E2H)**

To reset count of tape counter to "0000".

- **JVC TABLE 1 ON (F6H)**

A command to make JVC TABLE 1 effective. If this is activated, SONY/JVC TABLE mode is inhibited until it is inactivated. After resetting, it enters OPEN state.

- **JVC TABLE 1 OFF (F7H)**

To cancel JVC TABLE 1 mode.

- **REC/DUB REQUEST (FAH)**

This command must be transmitted prior to transmitting REC command.

- **VTR INQ (FBH)**

To return ACK code. (A command to confirm a VTR in connection)

**Note:**

- When the VTR falls into an error and enters warning mode, the 3rd bit of the 2nd byte of data to be returned by STATUS SENSE (D7H) becomes "1" to inform that the VTR is in a warning state. In that event, the warning mode is cleared by CLEAR (56H) command from the RS-232C or by turning on the VTR's power switch.
- When the VTR is set to LOCAL, commands from the RS-232C is not accepted except SENSE command and just ACK code is returned.
- Operation by commands from the RS-232C is available even when the VTR is in OPERATION LOCK mode.

### 3. STATUS SENSE (D7H) RETURN DATA

Byte	Bit	Status	Description
1st byte	7th bit	Undefined	Always outputs "1".
	6th bit	Undefined	Always outputs "0".
	5th bit	Undefined	Always outputs "0".
	4th bit	REC Inhibited	Recording protected cassette (without safety tab) is loaded in VTR. During this period no REC/AUD DUB commands are accepted.
	3rd bit	Cassette Out	No cassette tape loaded in VTR
	2nd bit	Undefined	Always outputs "0".
	1st bit	Undefined	Always outputs "0".
	0 bit	Error	VTR received illegal command. No subsequent command is accepted in this state. To clear this status, input CLEAR ERROR (41H).
2nd byte	7th bit	EE Mode	Externally input video signal is being output.
	6th bit	A1 EE Mode	Externally output audio signal is being output via AUD-1.
	5th bit	Undefined	Always outputs "0".
	4th bit	Undefined	Always outputs "0".
	3rd bit	Warning	Indicates VTR falling into warning state.
	2nd bit	Undefined	Always outputs "0".
	1st bit	Tape Begin	Tape beginning is being detected.
	0 bit	Tape End	Tape end is being detected.
3rd byte	7th bit	Undefined	Always outputs "0".
	6th bit	Timer REC ON	Timer REC switch is on.
	5th bit	Counter Search	VTR is in COUNTER SEARCH mode.
	4th bit	Repeat	VTR is in REPEAT REC/PB mode.
	3rd bit	Undefined	Always outputs "0".
	2nd bit	Repeat Mode	VTR is in REPEAT mode.
	1st bit	Search Mode	VTR is in SEARCH mode.
	0 bit	Undefined	Always outputs "0".
4th byte	7th bit	Play Mode	VTR is in PLAY mode.
	6th bit	FF Mode	VTR is in FF mode.
	5th bit	REW Mode	VTR is in REW mode.
	4th bit	STOP Mode	VTR is in STOP mode.
	3rd bit	Undefined	Always outputs "1".
	2nd bit	EJECT	VTR is ejecting cassette tape.
	1st bit	REC Mode	VTR is in recording operation.
	0 bit	Undefined	Always outputs "0".
5th byte	7th bit	PAUSE Mode	VTR is in PAUSE mode.
	6th bit	Undefined	Always outputs "0".
	5th bit	Shuttle FWD	VTR is operating Shuttle Search in the forward direction.
	4th bit	Shuttle REV	VTR is operating Shuttle Search in the reverse direction.
	3rd bit	Speed Code	See the Table below.
	2nd bit	Speed Code	See the Table below.
	1st bit	Speed Code	See the Table below.
	0 bit	Speed Code	See the Table below.

#### Relation between Speed Code and VTR Mode

Speed Code 3	Speed Code 2	Speed Code 1	Speed Code 0	VTR Mode
0	0	0	0	STILL
0	0	0	1	SLOW (TL) PB
0	1	0	1	TL REC/X1
0	1	1	0	X2
1	0	0	0	X7

• Serial Remote Control (via RCA connector)

REMOTE CONTROL CODE (for BR-S925)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			CLEAR (INITIAL- IZE)	TIMER ON					ON SCREEN OFF							
1			Data "1"	SP/EP(LP) /TL					POS H	VISS			REC CHECK			
2			Data "2"						POS V							
3	STOP		Data "3"	Data "0"	DIGITAL ON				OPE LOCK ON							
4	EJECT	SPEED UP	Data "4"	REC/ PLAY MODE	DIGITAL SKIP				OPE LOCK OFF							
5		SPEED DOWN	Data "5"		DIGITAL FREEZE ON/OFF				AL. PL RESET							
6	FF	FWD AD- VANCE	Data "6"	CANCEL	DIGITAL SHIFT				DIGITAL FREEZE OFF							
7	REW		Data "7"						1 SHOT IN							
8		SET -	Data "8"													
9		SET +	Data "9"	COUNT RESET												
A		POWER OFF	CLEAR E	PRG/CLK	DIGITAL MULTI					VISS FWD						
B				SHIFT -						VISS REV			REC			
C	PLAY			SHIFT +									REC PAUSE			
D	PAUSE/ STILL	POWER ON		ON SCREEN SELECT												
E	SEARCH FF	ON SCREEN ON/OFF		ENTER	DIGITAL FREEZE ON											
F	SEARCH REW	ON SCREEN ON	REPEAT	TIMER OFF	DIGITAL OFF											



• JVC Base Table

RS-232C PROTOCOL (for BR-S925)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				Data '0'	ENTER											
1	COM- PLETION			Data '1'	CLEAR ERROR											
2	ERROR			Data '2'											COUNT RESET	
3	CASSET- TE OUT			Data '3'							EJECT					
4				Data '4'												
5	NOT TARGET			Data '5'												
6				Data '6'		CLEAR										JVC TABLE 1 ON
7				Data '7'										STATUS SENSE		JVC TABLE 1 OFF
8				Data '8'												
9				Data '9'												
A	ACK			PLAY	REV PLAY								REC			REC/DUB REQUEST
B	NAK										FF		REC PAUSE			VTR INQ
C											REW					
D											F-FIELD STEP					
E																
F				STOP	STILL											

• JVC Table 1

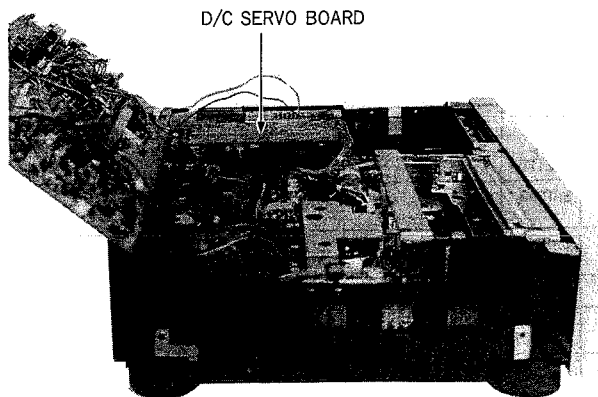
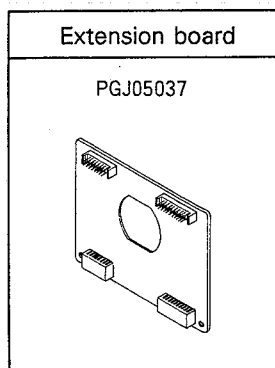
RS-232C PROTOCOL (for BR-S925)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				Data '0'	ENTER		TIMER ON	ON SCREEN ON	DIGITAL ON			VISS FWD		FRAME CODE (COUNT)		
1	COM- PLETION			Data '1'	CLEAR ERROR		TIMER OFF	ON SCREEN OFF	DIGITAL OFF			VISS REV	REC CHECK	DEVICE TYPE	AL/PL RESET	
2	ERROR			Data '2'			PRG/CLK	ROM VER	DIGITAL FREEZE ON						COUNT RESET	
3	CASSET- TE OUT			Data '3'			SHIFT +	POS V+	DIGITAL FREEZE OFF		EJECT	SEARCH (VISS)				
4				Data '4'			SHIFT -	ON SCREEN SELECT	DIGITAL SHIFT							
5	NOT TARGET			Data '5'			SET +	POS H +	DIGITAL MULTI					PL/AL COUNT SENSE		
6	ARM INPUT			Data '6'		CLEAR	SET -							TL STATUS SENSE		
7				Data '7'			CANCEL							STATUS SENSE		JVC TABLE 1 OFF
8				Data '8'			REPEAT									
9				Data '9'			OPE LOCK ON									
A	ACK			PLAY	REV PLAY		OPE LOCK OFF						REC			REC/DUB REQUEST
B	NAK							POWER ON			FF		REC PAUSE			VTR INQ
C								POWER OFF			REW					
D								MODE SHIFT			F-FIELD STEP	1SHOT INPUT				
E								MODE								
F				STOP	STILL											

## 1.5 USAGE OF EXTENSION BOARD

A kind of extension board is prepared for BR-S925E/S920E it is not required for adjustment but necessary for troubleshooting and checkup in repair.

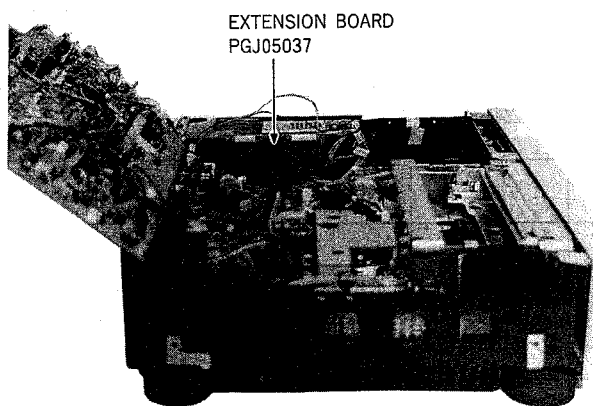
- Extension board for  
D/C SERVO board : PGJ05037



6. In the products whose serial numbers are before 320, the shield wire assy between the D/C SERVO board and the TIME LAPSE SERVO board may be at the very limit to do the above-mentioned connection work. (The shield wire assy of the serial No. 320 and after is a little longer.)

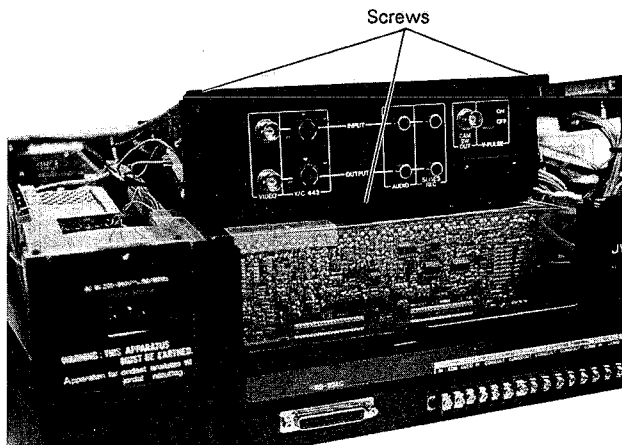
### 1.5.1 Connection of extension board PGJ05037

1. Take off the top cover.
2. Remove three screws from the VIDEO board and turn it up to open.
3. Disconnect connectors from the D/C SERVO board.
4. When disconnecting the D/C SERVO board from the MECHA CTL board, carefully disconnect the connectors not to hurt hands since they are tightly connected.
5. Install the extension board and replace the D/C SERVO board horizontally as it was. Then, connect all connectors between them.



### 1.5.2 Check of TIME LAPSE board

1. Take off the top cover.
2. Remove three screws from the VIDEO board and turn it up to open.
3. Remove three screws retaining the REAR board assy and raise the board upward as shown in the following figure.

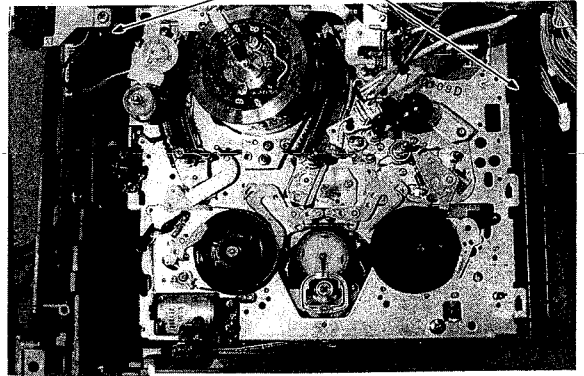


4. Remove one screw retaining the transparent shield plate (PRS30024-02).

## 1.6 REMOVAL OF MAIN DECK

1. Take off the top cover.
2. Remove three screws from the VIDEO board and turn it up to open. (Refer to Section 1.3.)
3. Remove the drum cover assy.
4. Remove the cassette housing assy. (Refer to Section 2.2.)
5. Detach the cleaner assy and leave it in the left of the original position.
6. Disconnect wires including two earth wires from the A/C head, and remove the earth terminal.
7. Disconnect flat wires coming from the mechacon from the main deck. (Refer to Section 2.8.6.)
8. Remove two screws retaining the PRE/REC board and lift the board upward while removing it.
9. Disconnect the connector from the upper part of the full erase head.
10. Take off the bottom cover and disconnect connectors for the capstan motor. (Refer to Section 1.5 (2).)
11. Remove three screws retaining the main deck.
12. Push the locks of the chassis assy in the both sides of the main deck while lifting the main deck by the front side of it.

Push the locks while lifting the main deck upward.

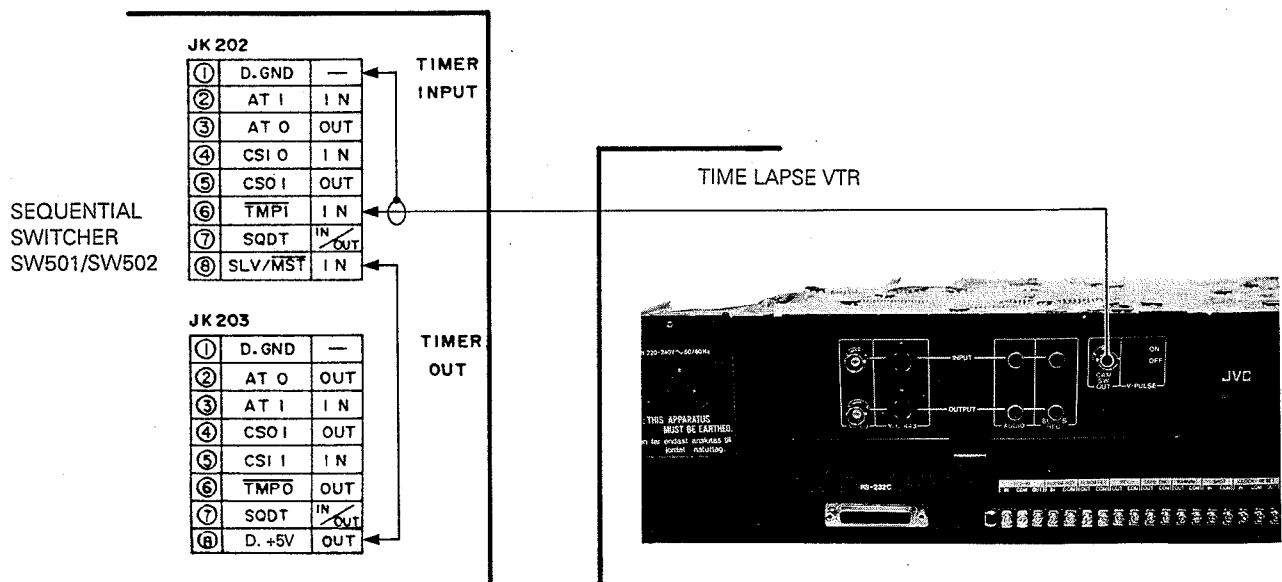


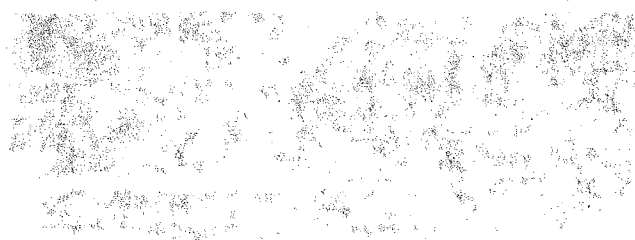
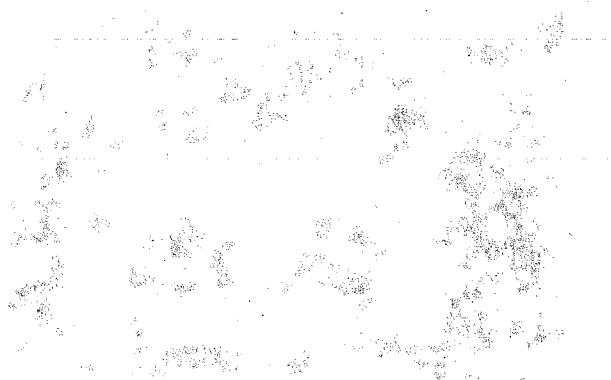
**Note:** To separate the main deck completely from the whole assembly, disconnect connectors which connect it respectively with the lower drum and the heater.

## 1.7 TO CONNECT BR-S925E/S920E WITH SEQUENTIAL SWITCHER SW501/SW502

1. Connect the pin 6 of the sequential switcher's TIMER INPUT connector with the time lapse VTR's CAMERA SW OUT terminal while connecting the connector's pin 1 to the GND terminal.
2. Connect the pin 8 of the sequential switcher's TIMER INPUT connector with the pin 8 of its TIMER OUT connector.

**Note:** For the above connection, it is necessary to use two DIN connectors.





## SECTION 2 MECHANISM ADJUSTMENT

### 2.1 PRECAUTIONS

1. Disconnect the set from the power source before replacing and soldering parts.
2. When removing screws, washers and other fasteners, be very careful not to drop them into the mechanism. If this occurs, make sure to retrieve them.
3. The tape transport mechanism has been precisely adjusted at the factory and it does not require readjustment except for the adjustments specified in this section and after parts replacement.
4. Do not touch and damage other parts during servicing (particularly parts of the tape transport mechanism and drums).
5. For operating the mechanism with the cassette housing removed from the deck section, proceed to do it referring to the following explanation.

### 2.2 REMOVAL OF CASSETTE HOUSING

1. Remove six screws retaining the top cover to take it off.
2. Remove three screws retaining the A/V board and open the A/V board.
3. Remove the earth terminal in the right side of the cassette housing after removing the fastener screw.
4. Release the front panel from the three retainers on its upper side and tilt the front panel to the front side.
5. After removing two screws retaining the cassette housing, pull it to this side while lifting it upward to disconnect the connector and to disassemble it from the deck.

• **To operate the mechanism without the cassette housing, proceed to do it in the following manner.**

1. First of all, turn off the power switch and then disconnect the power cable from the AC outlet.
2. After removing the cassette housing from the deck, connect the connector. (Do not load any cassette tape.)
3. Apply black vinyl tape or the like onto the end sensor in the deck side to shut off incident light.

4. Connect the power cable to the AC outlet and turn on the power switch.  
Select a mechanism mode by the operation button on the front panel.
5. To separate the cassette housing completely from the deck, disconnect the connector in the condition of the above step 4.
6. When reassembling the cassette housing to the deck, make sure to remove the black vinyl tape, etc.

### 2.3 SPECIAL DEVICES AND JIGS FOR MECHANISM ADJUSTMENT

For mechanism adjustment, the following jigs and special devices are necessities. (See Table 2-1.)

**Note:** For special tools and jigs for electrical adjustment, refer to the section 3.

### 2.4 LUBRICATION

Periodic oiling and greasing are not required in general. Apply oil or grease to new parts only when they are newly installed.

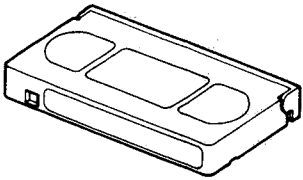
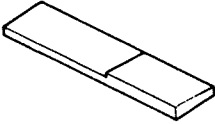
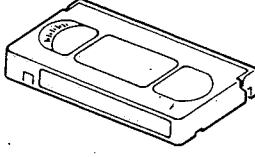
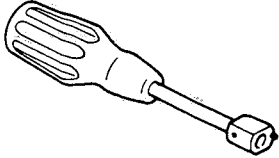
When oil or grease on the other party is dirty, wipe it off and apply new oil or grease.

1. The genuine oil and grease used in this set are shown below.

Item	Brand	Part No.
Oil	Cosmo Hydro HV56 (general spindle oil of low viscosity is usable)	COSMO-HV56
Grease	Moriton Grease (Black) Daphne Grease (Milky)	MOS2-C DAPHNE-XLA-2

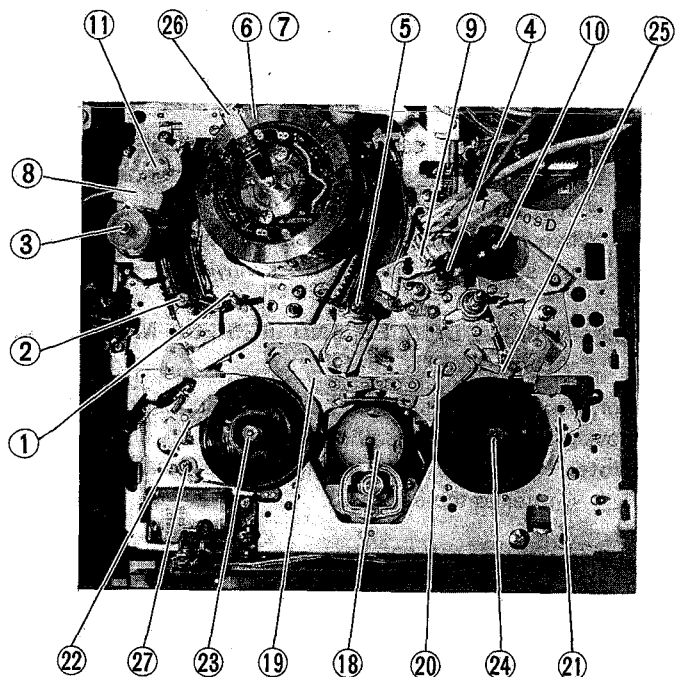
2. Grease is applied to the cassette housing assembly, and new service parts for replacement are greased before shipment.

**Note:** When applying grease left for a long time, stir it lightly before use.

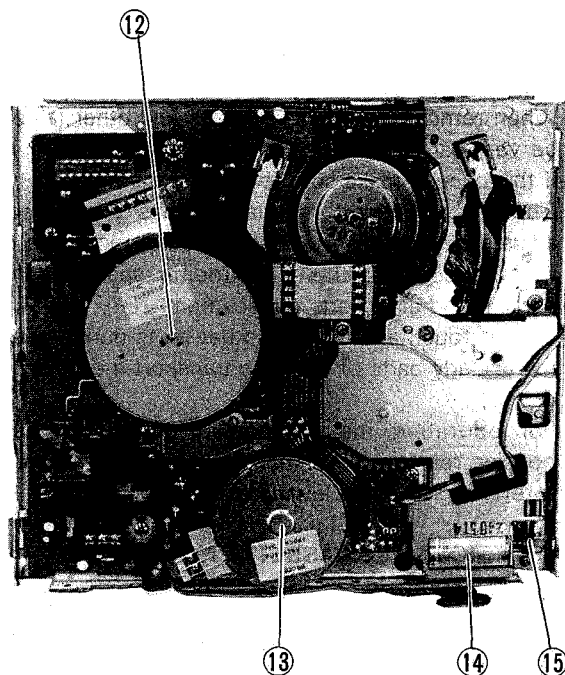
Alignment tapes MHPE, MHPE-L, MHAE, MHVE-2	Parallel check plate PUJ50204	Back tension cassette gauge PUJ42881	A/C head positioning jig PUJ47351-2
			

**Table 2-1** Special devices and jigs

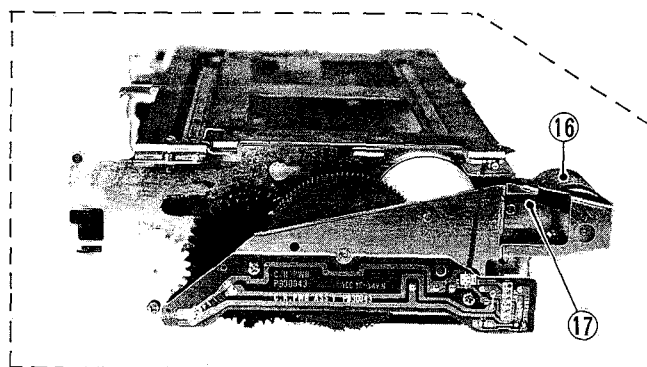
## 2.5 LOCATION OF MAIN MECHANISM PARTS



**Fig. 2-1** Top view of deck  
(without head cleaner)



**Fig. 2-2** Bottom view of deck  
(Actual shape of capstan motor is different from this.)



**Fig. 2-3** Cassette housing

- |                          |                       |                      |
|--------------------------|-----------------------|----------------------|
| 1 Tension arm assy       | 11 Roller assy        | 21 Take-up sub brake |
| 2 Supply pole base assy  | 12 Capstan motor      | 22 Supply sub brake  |
| 3 Impedance roller       | 13 Reel motor         | 23 Supply reel disk  |
| 4 Take-up guide pole     | 14 Mode motor         | 24 Take-up reel disk |
| 5 Take-up pole base assy | 15 Mode belt          | 25 Reverse brake     |
| 6 Drum assy              | 16 Cassette motor     | 26 Brush assy        |
| 7 Upper drum assy        | 17 Cassette belt      | 27 Tension band      |
| 8 Full erase head        | 18 Idler arm          | 28 Head cleaner      |
| 9 A/C head               | 19 Supply main brake  |                      |
| 10 Pinch roller arm assy | 20 Take-up main brake |                      |

## 2.6 STANDARD OF MAIN PARTS REPLACEMENT

Periodic inspection and maintenance are needed in order to ensure the original capacity and reliability of the set. The following table shows just a standard compiled based on general and average use. In actual, the periods will widely vary according to environmental and usage conditions.

If the inspection and maintenance work of the following items are improperly performed, it not only shortens the periods but also gives bad influence on the set. Also be aware that rubber parts may deform and age even when the set is not used. The upper drum life is particularly affected by environmental and usage conditions.

Classification	No.	Parts Name	Parts No.	Periodic servicing schedule (operating hours)								Ref. sect.	Remarks
				1000	2000	3000	4000	5000	6000	7000	8000		
Tape transport system	1	Tension arm assy	PQ43710A	★	★	★	★	★	★	★	●		<ul style="list-style-type: none"> <li>• Perform cleaning with fine woven cloth or gauze moistened in alcohol.</li> <li>• Confirm that the cleaned parts are thoroughly dry before operating the deck with tape.</li> <li>• For lubrication, use sewing machine oil or quality spindle oil.</li> <li>• After cleaning with alcohol, apply 1 or 2 drops of oil.</li> </ul>
	2	Supply pole base assy	PGZ01350	★	★	★	●	★	★	★	●		
	3	Impedance roller	PQ41955	★	★	★	●	★	★	★	●		
	4	Take-up guide pole	PU53629-3	★	★	★	●	★	★	★	●		
	5	Take-up pole base assy	PGZ01351	★	★	★	●	★	★	★	●		
	6	Drum assy	PDV2277A	★	★	★	●	★	★	★	●	2.8.5	
	7	Upper drum assy	PDM2170C	○	●	○	—	○	●	○	—	2.8.1	
	8	Full erase head	PU60646	★	★	★	★	★	★	★	★		
	9	A/C head	PU60560-2	★	★	★	●	★	★	★	●	2.8.2	
	10	Pinch roller arm assy	PQ42006B-5	★	★	★	●	★	★	★	●	2.8.9	
	11	Roller assy	PQ43837A	★	★	★	●	★	★	★	●		
Drive system	12	Capstan motor	PGZ01300	★	★	★	●	★	★	★	●	2.8.7	
	13	Reel motor	PGZ01332				●				●	2.8.8	
	14	Mode motor	PQ41996B				●				●	2.9.2	
	15	Mode belt	PQM30003-20		○		●		○		●	2.9.2	
	16	Cassette motor	PQ42385A				●				●		
	17	Cassette belt	PQM30003-19		○		●		○		●		
	18	Idler arm	PU58645-1-4	★	●	★	●	★	●	★	●	2.8.8	
	19	Supply main brake	PQ42019B-6				●				●		
	20	Take-up main brake	PQ42020B				●				●		
	21	Take-up sub brake	PQ42037A-2				●				●		
	22	Supply sub brake	PQ42021A-3				●				●		
	23	Supply reel disk	PU59250-1-2		△		●		△		●		
	24	Take-up reel disk	PU58638-1-2		△		●		△		●		
	25	Reverse brake	PQ43778A		○		●		○		●		
Others	26	Brush assy	PDM4015B		●		●		●		●		Check back tension.
	27	Tension band assy	PRD43319A		●		●		●		●	2.8.3	
	28	Head cleaner	PRD40510-01-02	●	●	●	●	●	●	●	●		

(★= Cleaning    ○= Check, or Replace if necessary    ●= Replacement    △= Lubrication)

**Table 2-2** Maintenance and replacement standard of main mechanism parts

## 2.7 CLEANING

Although periodical cleaning of the tape transport system is required, it is almost impossible to put it into practice. Therefore, it is strongly recommended to clean the tape transport system when a set is brought in for repair, etc.

1. Dirty video head causes rough playback picture and non reproduction in the extreme case.
2. Dirty tape guide not only increases video heads in getting dirty much more but also damages tapes.
3. Dirty and dusty brush causes snow noise in playback picture.

For cleaning, use fine woven cotton cloth moistened with alcohol.

- For cleaning of video heads, lightly press the cloth to the upper drum by finger while turning the drum.

**Note:** Since the video head is weak against vertical force (applied in up-down direction), movement of cloth may possibly damage it.

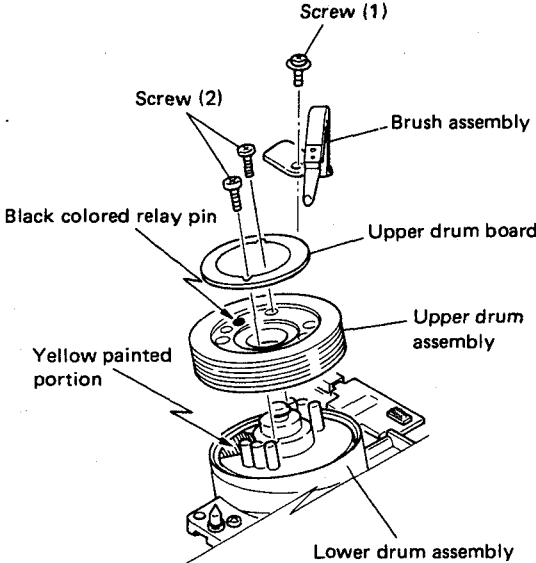
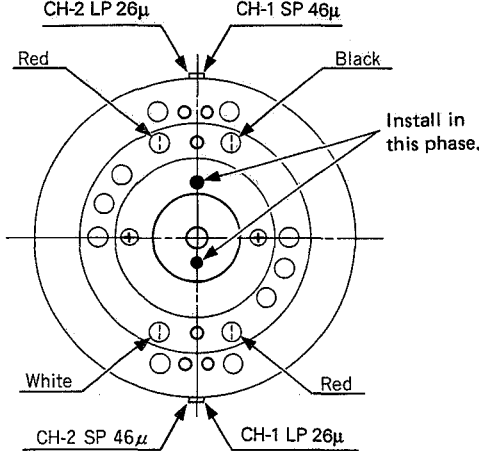
- The following cleaning kit is prepared as service supplies.

Name	Part No.
Cleaning cloth	PU41398

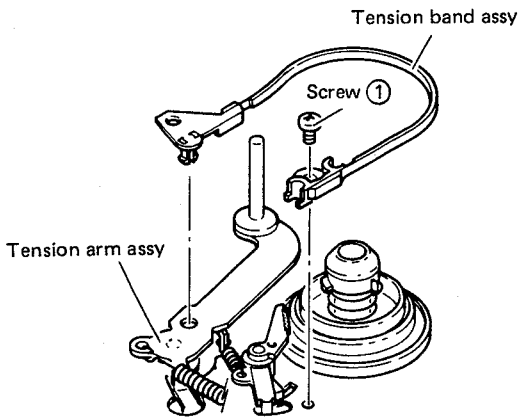
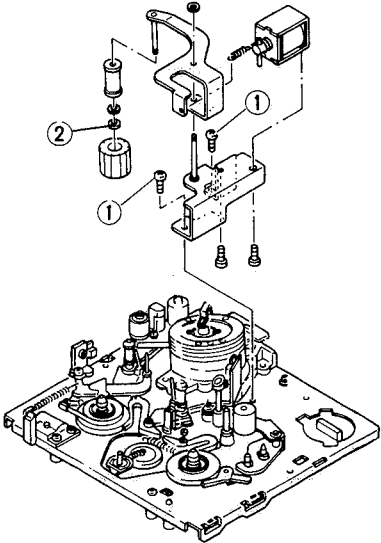
**Table 2-3**

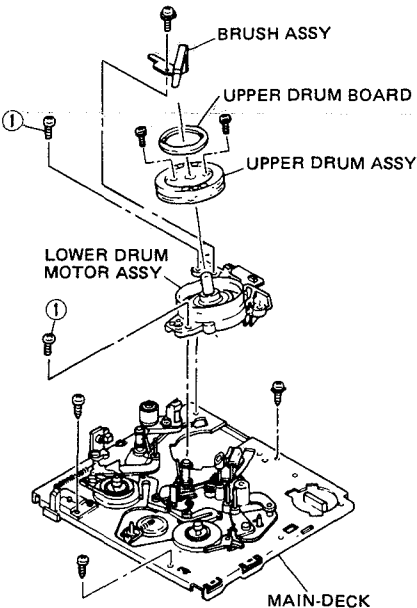
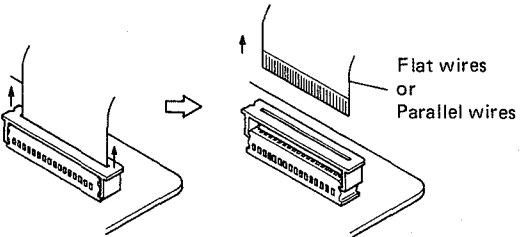


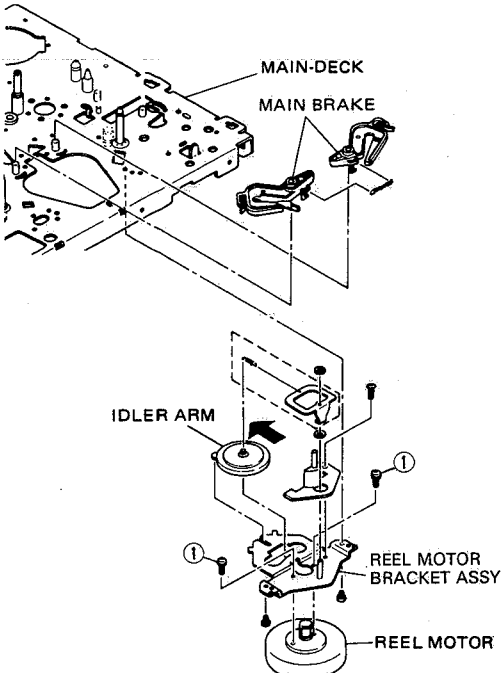
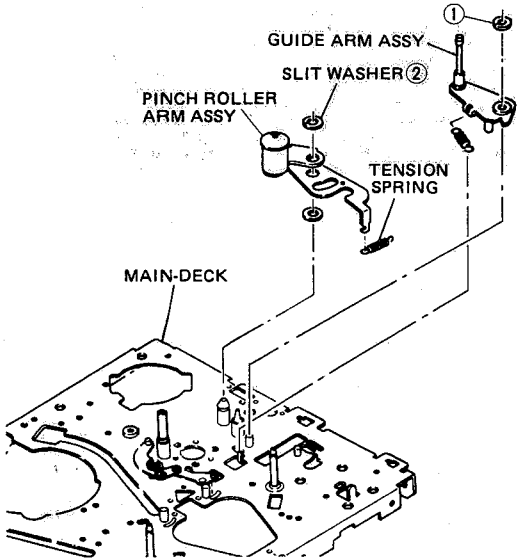
## 2.8 REPLACEMENT OF MAIN PARTS

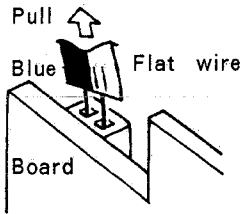
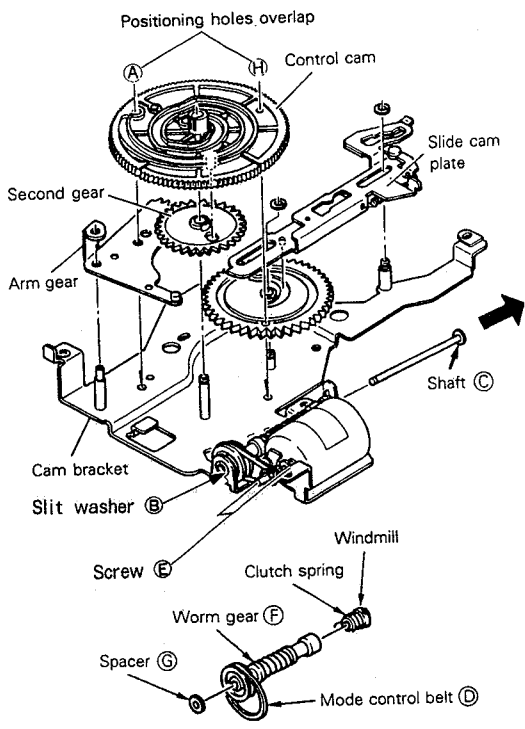
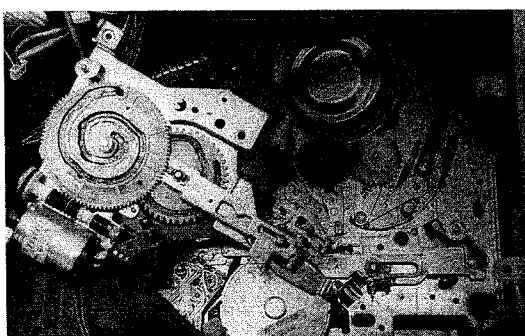
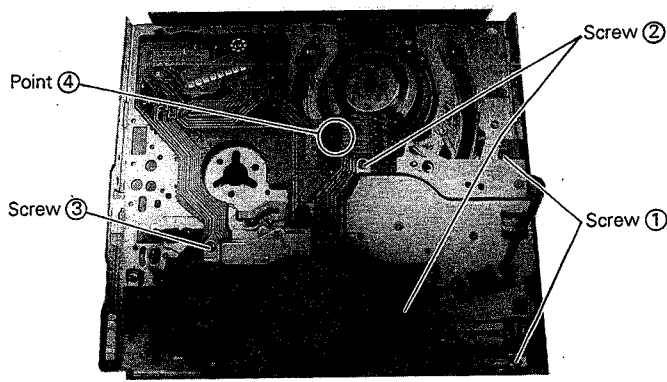


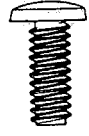


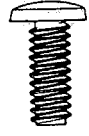


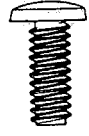
No.	Item and Reference Illustration	Description
1	<p>Upper drum assembly</p> <p>– Replacement –</p>  <p><b>Fig. 2-4</b> Upper drum assembly</p>	<p><b>Note:</b> When assembling a new upper drum, install it right down with care not to touch the drum head.</p> <p>For cleaning the drum head, turn the upper drum clockwise while lightly pressing soft and fine wooven cloth or chamois moistened in alcoho to the drum head by fingers. At that time, do not move the cloth vertically against the upper drum.</p> <ol style="list-style-type: none"> <li>1) Remove the screw ① and detach the brush assembly.</li> <li>2) Unsolder and remove all solders from the UPPER DRUM board with a solder absorber or bridged wires.</li> <li>3) Remove the screws ② and take out the upper drum and the UPPER DRUM board together with while lifting them upwards with meticulous care not to touch and damage the drum head.</li> </ol>
	<p>– Installation –</p>  <p><b>Fig. 2-5</b></p>	<ol style="list-style-type: none"> <li>1) Assemble the upper drum assy and the lower drum assy so that the black relay pin of the upper drum assy is on the top of the white marking of the lower drum assy. (See Fig. 2-4.)</li> <li>2) Set the screws ② and tighten them to be well balanced.</li> <li>3) Put the DRUM board onto the upper drum assy and solder them.</li> <li>4) Clean the drum assy, particularly the upper drum assy.</li> <li>5) Reinstall the bruth assy and tighten the screw ① to secure it.</li> </ol> <p><b>Note:</b> Confirm that the hole A of the upper drum and the hole B of the lower drum face each other across the drum motor shaft. (viewed from right above as shown in Fig. 2-5)</p>
	<p>– Check and adjustment –</p>	<ol style="list-style-type: none"> <li>1) Confirm the shape of the FM waveform. (See Sect. 2.12.)</li> <li>2) Confirm the X value. (See Sect. 2.12.)</li> <li>3) Adjust the servo circuit. (See Sect. 3.4.)</li> <li>4) Adjust the video circuit. (See Sect. 3.7 and 3.8.)</li> <li>5) Adjust the audio circuit. (See Sect. 3.6.)</li> </ol>

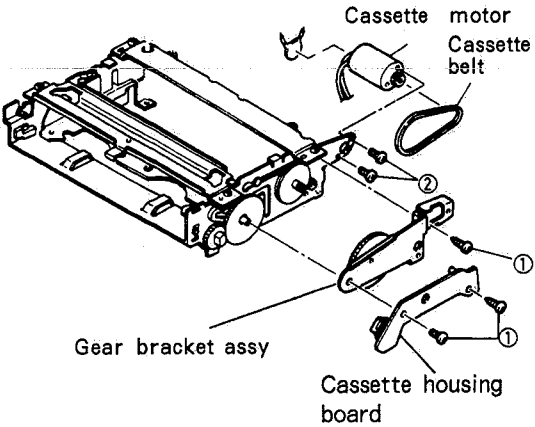
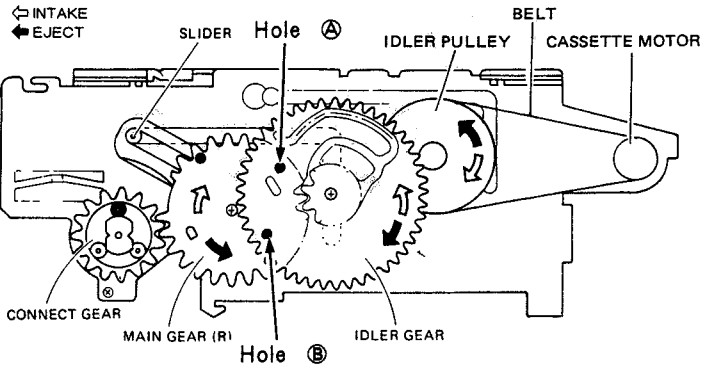
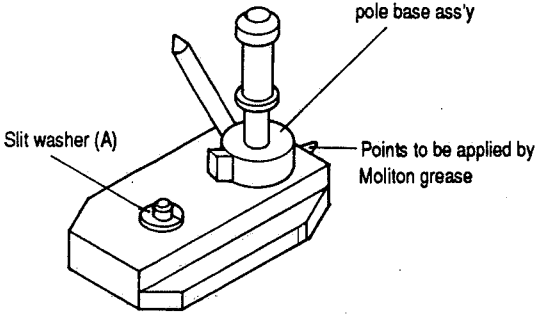
No.	Item and Reference Illustration	Description
2	A/C head (Audio/Control head)	<ol style="list-style-type: none"> <li>1) Remove two screws ① and take out the A/C head together with the head base.</li> <li>2) Remove the A/C HEAD board from the A/C head after unsoldering.</li> <li>3) Remove three screws ③ and remove the A/C head from the head base. At that time, pay careful attention to three springs not to lose them.</li> </ol>
	- Replacement -	
	<p style="text-align: center;">(To Main deck)</p>	
	<b>Fig. 2-6</b> A/C head	
	- Installation -	
		<ol style="list-style-type: none"> <li>1) Assemble the A/C head and the peripheral parts in the reverse order of disassembling them from the main deck.</li> <li>2) Before fixing the A/C head to the main deck, temporarily adjust the A/C head height to be 6.6 mm.</li> </ol> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• If an alignment tape is used in the condition of unstable tape transport, it may damage the tape.</li> <li>• Confirm that the inclination of the A/C head is within 0.1 mm by use of the parallel check plate.</li> </ul>
	<b>Fig. 2-7</b> A/C head height	
	- Check and adjustment -	
		<ol style="list-style-type: none"> <li>1) Use any tape other than the alignment tape to confirm that the tape is correctly transported. Interchangeability adjustment should be performed after that. (See sect. 2.11, 2.12 Item No. 2 and 3.)</li> <li>2) Adjust the audio circuit. (See Sect. 3.6.)</li> </ol>

No.	Item and Reference Illustration	Description
3	<p data-bbox="209 293 459 320">Tension band assembly</p>  <p data-bbox="336 913 694 940"><b>Fig. 2-8</b> Tension band assembly</p>	<ol style="list-style-type: none"> <li>1) Remove a screw ① and pull out the tension band from the tension arm.</li> <li>2) Engage a new tension band in the reverse manner of removing it.</li> <li>3) Confirm the position of the tension pole. (See Sect. 2.10 Item No. 1.)</li> </ol>
4	<p data-bbox="209 1046 459 1072">Head cleaner assembly</p>  <p data-bbox="316 1731 673 1758"><b>Fig. 2-9</b> Head cleaner assembly</p>	<ol style="list-style-type: none"> <li>1) Remove a screw ① and take out the head cleaner assembly.</li> <li>2) Remove a slit washer ② and replace the cleaner.</li> <li>3) For replacement of the slit washer, make sure to use a new one. (Part No. PQM30017)</li> </ol>

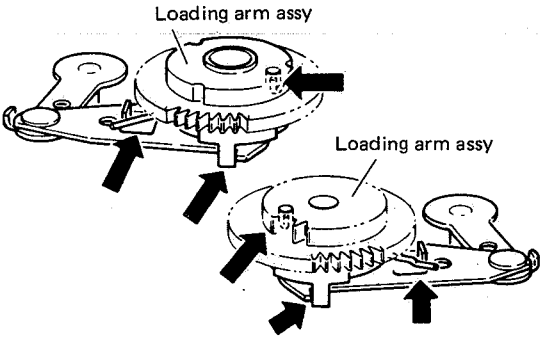
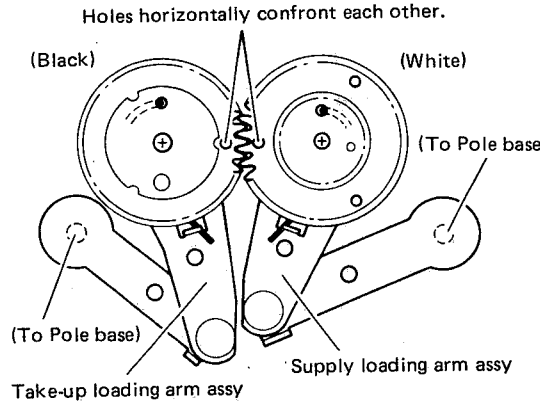
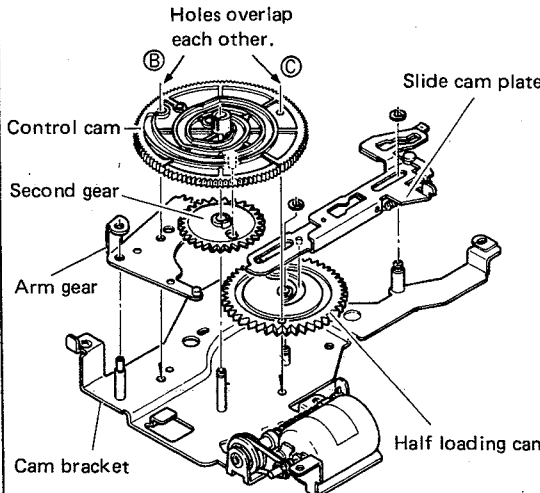
No.	Item and Reference Illustration	Description
5	<p data-bbox="124 271 288 297">Drum assembly</p>  <p data-bbox="245 925 536 952"><b>Fig. 2-10</b> Drum assembly</p>	<ol style="list-style-type: none"> <li>1) Remove the head cleaner assembly. (See above item No. 4.)</li> <li>2) Remove screws ① and the connector to replace the drum assembly.</li> <li>3) For replacing the lower drum assembly only, refer to the above item No. 1, replacement of the upper drum.</li> <li>4) Clean the drum assembly.</li> </ol>
	<p data-bbox="124 987 395 1014">- Check and adjustment -</p>	<ol style="list-style-type: none"> <li>1) Confirm the shape of the FM waveform and X value. (See Sect. 2.12.)</li> <li>2) Adjust the servo circuit. (See Sect. 3.4.)</li> <li>3) Adjust the video circuit. (See Sect. 3.7 and 3.8.)</li> <li>4) Adjust the audio circuit. (See Sect. 3.6.)</li> </ol>
6	<p data-bbox="124 1207 225 1234">Flat wires</p>  <p data-bbox="277 1547 504 1574"><b>Fig. 2-11</b> Flat wires</p>	<ol style="list-style-type: none"> <li>1) When disconnecting and reconnecting flat wires, do the work as the both ends of connector are pulled out upwards as shown in Fig. 2-11.</li> </ol>
7	<p data-bbox="124 1610 277 1637">Capstan motor</p>	<ol style="list-style-type: none"> <li>1) Remove the upper stay of the cassette housing.</li> <li>2) Take off the bottom cover after removing seven screws retaining it.</li> <li>3) Remove three screws retaining the capstan motor and disconnect the connectors from the board before replacing the capstan motor.</li> </ol> <p data-bbox="687 1798 1385 1888"><b>Note:</b> • Through the above procedure, be careful not to damage the capstan. • It is unnecessary to remove the main deck assembly.</p>

No.	Item and Reference Illustration	Description
8	<p data-bbox="193 286 662 320">Main brake assembly, Idler arm, Reel motor</p>  <p data-bbox="323 1070 671 1104"><b>Fig. 2-12</b> Reel motor assembly</p>	<ol style="list-style-type: none"> <li>1) Remove the capstan motor. (Refer to Item No. 7.)</li> <li>2) Lift the main brake assembly by use of nippers, etc. while removing it.</li> <li>3) Remove a spring from the idler arm and take out the idler arm in the direction indicated by the arrow.</li> <li>4) Remove the screws ① and unsolder to take out the reel motor.</li> <li>5) For reassembly, proceed to the above steps in the reverse order.</li> </ol> <p><b>Note:</b> It is unnecessary to remove the cassette housing and the main deck assembly.</p> <p>If necessary change idler unit (PQ42906B-2 or PU59911-2).</p>
9	<p data-bbox="193 1167 654 1200">Pinch roller assembly, Guide arm assembly</p>  <p data-bbox="296 1973 646 2007"><b>Fig. 2-13</b> Pinch roller assembly</p>	<ol style="list-style-type: none"> <li>1) Remove the slit washer ① and take out the guide arm assembly.</li> <li>2) Remove the slit washer ② and the tension spring, then replace the pinch roller assembly.</li> <li>3) Use new slit washers. (Part No. PQM30017-6, -28)</li> </ol>

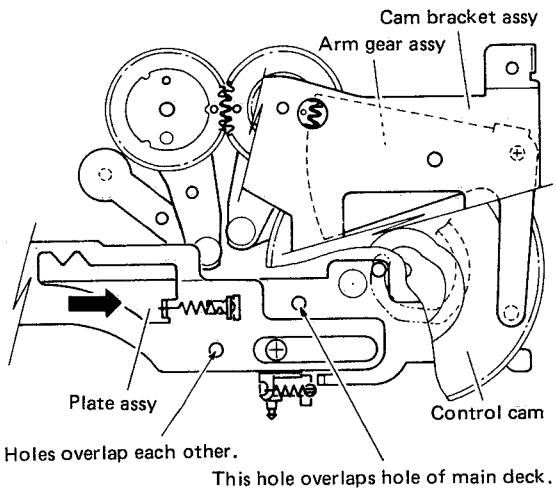
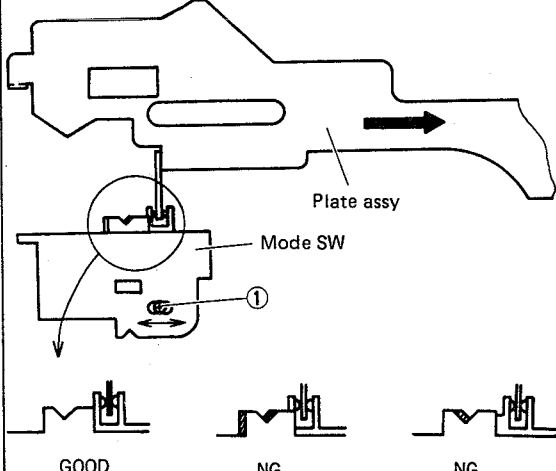
No.	Item	Description						
10	<p>Mode belt and mode motor replacement</p>  <p><b>Fig. 2-14</b></p>  <p><b>Fig. 2-15</b></p>  <p><b>Fig. 2-16-2</b></p>	<ol style="list-style-type: none"> <li>1. Remove the top and the bottom covers. (Refer to Sec. 1.1)</li> <li>2. Remove the capstan motor. (Refer to Sec. 2.7.7.)</li> <li>3. Remove the shield plate.</li> <li>4. Flat wires of the end sensor can be disconnected by simply pulling upward.</li> <li>5. Cam bracket assembly removal. <ol style="list-style-type: none"> <li>1) Take out 2 screws ①, 2 screws ② and a screw ③.</li> </ol> <p><b>Note: Screws 2 are short (2.6 x 3 mm).</b> <b>Use care to insert them correctly.</b></p> <ol style="list-style-type: none"> <li>2) Pull out the cam bracket assembly and invert it at point ④.</li> </ol> </li> <li>6. Mode control belt and mode motor removal <ol style="list-style-type: none"> <li>1) Take off a slit washer ⑥ and remove a shaft ⑦ as indicated by the arrow. Change the slit washer of a new part.</li> </ol> <p><b>Part No. : PQM30017-5</b></p> <ol style="list-style-type: none"> <li>2) Disengage the mode control belt ④ from the motor pulley.</li> <li>3) Pull the worm gear ⑥ upwards and remove the mode control belt.</li> <li>4) Take out 2 screws ⑤ and remove the mode motor. <ul style="list-style-type: none"> <li>• <b>Install the new motor and the new belt and reassemble the worm gear by reversing the above steps.</b></li> </ul> </li> </ol> <p><b>Note: Use care not to misplace the spacer ⑧.</b></p> </li> <li>7. Refer to Sec. 2.9.1, 2.9.2 reassemble the cam bracket assembly paying attention to positioning holes ① and ②.</li> </ol>  <p><b>Fig. 2-16-1</b></p> <table border="1" data-bbox="694 1702 1404 1937"> <tr> <td>Screw ①</td><td>Screw ②</td><td>Screw ③</td></tr> <tr> <td></td><td></td><td></td></tr> </table>	Screw ①	Screw ②	Screw ③			
Screw ①	Screw ②	Screw ③						
								

No.	Item	Description
11	<p>Cassette belt and cassette motor replacement</p>  <p><b>Fig. 2-17</b></p>	<ol style="list-style-type: none"> <li>1) Remove the cassette housing assembly.</li> <li>2) Take out 3 screws ① and remove the gear bracket assembly with the cassette housing board.</li> <li>3) Remove the cassette belt.</li> <li>4) Take out 2 screws ② and remove the cassette motor.</li> <li>5) Reassemble by reversing the above steps paying attention to holes ③ and ④ overlap their corresponding holes.</li> </ol>  <p><b>Fig. 2-18</b></p>
12	<p>Pole base assembly</p>  <p><b>Fig. 2-19</b> TU pole base ass'y</p>	<ol style="list-style-type: none"> <li>1) Refer to sec. 2.8.3 remove the drum assembly.</li> <li>2) Remove the slit washer ①.</li> <li>3) Remove the bottom cover and turn the mode motor counter clockwise, and then proceed in a loading end state.</li> <li>4) Remove the pole base assembly by pulling upward.</li> <li>5) Reassemble by reversing the above steps and change the slit washer of a new one (PQM30017-5).</li> <li>6) Confirm the shape of the FM waveform. (see sec. 2.12.1)</li> </ol>

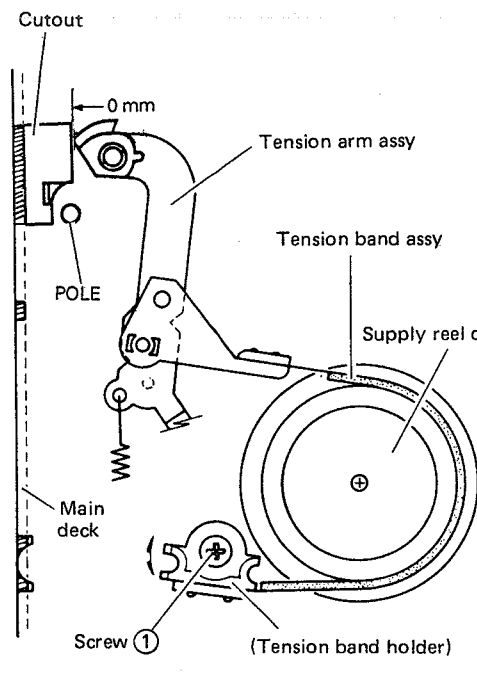
## 2.9 MECHANISM ASSEMBLY

No.	Item and Reference Illustration	Description
1	<p data-bbox="113 275 352 300">Loading arm assembly</p>  <p data-bbox="236 745 580 770"><b>Fig. 2-20</b> Loading arm assy (1)</p>  <p data-bbox="244 1245 580 1270"><b>Fig. 2-21</b> Loading arm assy (2)</p>	<p data-bbox="683 271 1390 454">In the mechanism of this model, there is a close relation between the mode select switch and the mechanism control circuit. Therefore, all mechanism operations of levers, gears, rollers are determined by engagement of the mode select switch and the control arm. If these parts are incorrectly installed, the video deck enters the unloading or the stop mode.</p> <p data-bbox="683 459 1390 521">The loading arm assembly is composed of the loading gear, torsion spring, and loading arm.</p> <ol data-bbox="683 526 1390 741" style="list-style-type: none"> <li>1) For reassembling the loading arm assembly, perform it correctly referring to Fig. 2-20.</li> <li>2) Put the take-up loading arm assy and the supply loading arm assy together so that their holes located on respective loading gears are positioned as shown in Fig. 2-11. After setting them correctly, keep their positions shown in Fig. 2-21 for further mechanism operations.</li> </ol>
2	<p data-bbox="113 1312 245 1337">Control cam</p>  <p data-bbox="264 1933 517 1957"><b>Fig. 2-22</b> Control cam</p>	<ol data-bbox="683 1305 1390 1742" style="list-style-type: none"> <li>1) Assemble the control cam and the second gear while inserting the pin of the control cam into the hole of the second gear.</li> <li>2) Install the half loading cam onto the cam bracket.</li> <li>3) Install the slide cam plate onto the half loading cam while inserting the pin of the slide cam plate into the groove of the half loading cam.</li> <li>4) Install the arm gear onto the cam bracket.</li> <li>5) Install the control cam and the second gear which are assembled in the above step 1) onto the cam bracket. At that time pay attention to the respective positions of the holes of the control cam, arm gear and cam bracket so that they are aligned in the position shown by B in Fig. 2-22 while holes of the control cam, half loading cam and cam bracket are aligned in the position shown by C in Fig. 2-22.</li> </ol>

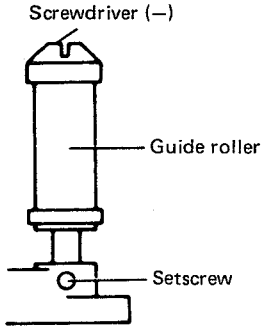
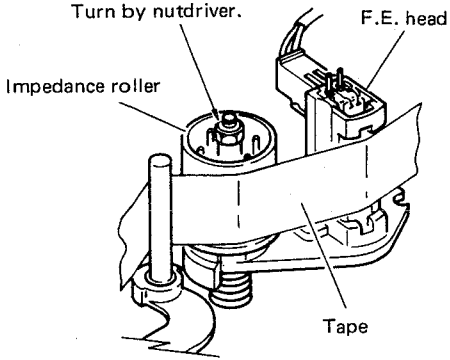
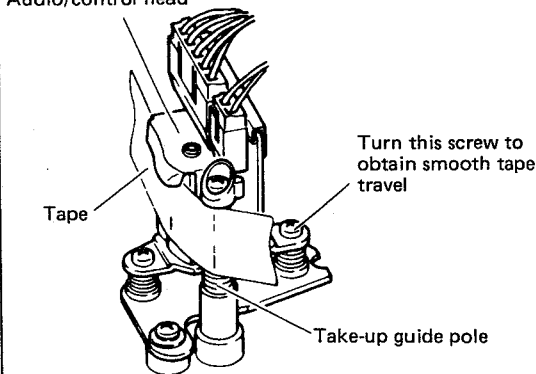


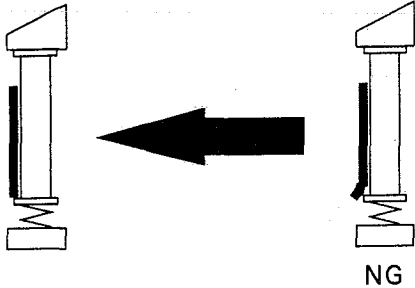
No.	Item and Reference Illustration	Description
3	<p data-bbox="193 286 336 320">Cam bracket</p>  <p data-bbox="292 969 659 1003"><b>Fig. 2-23</b> Cam bracket assembly</p>	<ol style="list-style-type: none"> <li>1) Press the plate assembly to the right side while holding it so that holes of the main deck and the plate assembly are aligned. (Fig. 2-23)</li> <li>2) Install the cam bracket assembly.</li> </ol> <p><b>Note:</b> If the arm gear and the loading gear are not well engaged, use a precision screwdriver or the like to engage gear teeth of the arm gear with those of the loading gear while installing the cam bracket assembly.</p>
4	<p data-bbox="193 1070 464 1104">Mode switch positioning</p>  <p data-bbox="260 1720 683 1753"><b>Fig. 2-24</b> Positioning of mode switch</p>	<ol style="list-style-type: none"> <li>1) Referring to Fig. 2-24, engage the plate assembly with the mode switch, and then lightly tighten the screw ① so that the mode switch can be slid right and left.</li> <li>2) Press the plate assembly rightwards so that the holes shown in Fig. 2-23 are in the same position, and then fix the plate assembly temporarily by inserting a precision screwdriver, etc.</li> </ol> <p><b>Note:</b> When the cam bracket has already been installed, turn the mode motor to align the hole of the plate assembly.</p> <ol style="list-style-type: none"> <li>3) Move the mode switch right and left while tighten the screw ① to secure it when the upper notch is on the top of the lower notch as shown in Fig. 2-24.</li> <li>4) Remove the precision screwdriver, etc. Then, install the board and solder it.</li> </ol>

## 2.10 CONFIRMATION AND ADJUSTMENT

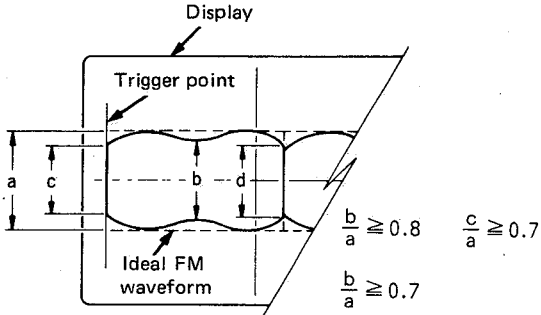
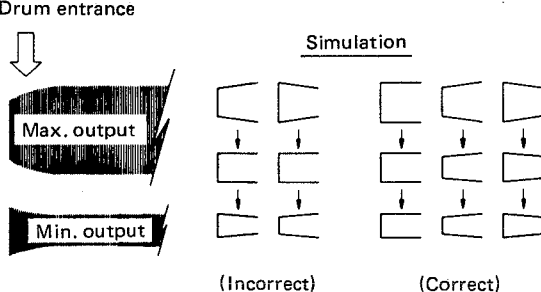
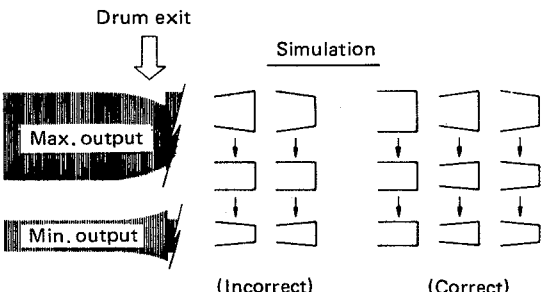
No.	Item and Reference Illustration	Description
1	<p>Tension pole position</p>  <p>Fig. 2-25 Tension pole position</p>	<ol style="list-style-type: none"> <li>1) In the condition that the power switch is turned off and any cassette tape is not loaded, apply black tape, etc. to the LED located in the center of the deck to shut off infrared ray.</li> <li>2) Turn on the power and set the deck to the Play mode, and then the power will be cut off a few seconds later. Turn off the main power switch and set the cassette housing to intake mode manually (without cassette tape loaded).</li> <li>3) Slightly loosen the screw ① and adjust the tension band holder so that the gap between the tension arm and the cutout portion is 0 mm. (See Fig. 2-25.)</li> <li>4) Tighten the screw ① to fix the tension band holder.</li> <li>5) Set the deck to the Play mode with a cassette torque meter set onto the supply side.</li> <li>6) Confirm that the cassette torque meter reads <math>35 \pm 5</math> g-cm at the supply side.</li> <li>7) If not, clean the part of the supply reel disk where the tension band contact it with alcohol or check the work of the tension arm spring. When the result of the above procedure is unsatisfactory, replace the tension band assembly and the supply reel disk.</li> </ol>
2	<p>Take-up torque</p>	<ol style="list-style-type: none"> <li>1) Set the deck to the Play mode with a cassette torque meter set onto the take-up side.</li> <li>2) Confirm that the cassette torque meter reads <math>100 \pm 55</math> g-cm as the take-up torque.</li> <li>3) If not, clean portions to contact tape with alcohol and replace the idler arm assembly. (Refer to Sect. 2.8, Item No. 8.)</li> </ol>

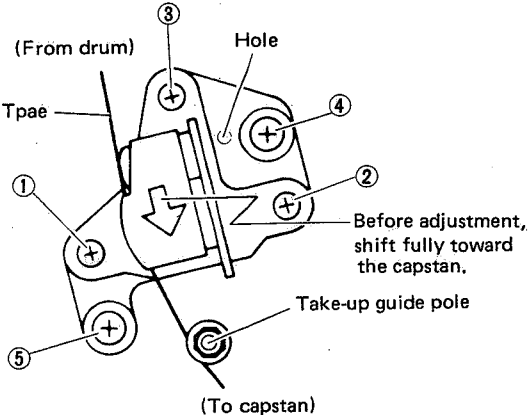
## 2.11 CHECK AND ADJUSTMENT PREPARATION OF TAPE TRANSPORT SYSTEM

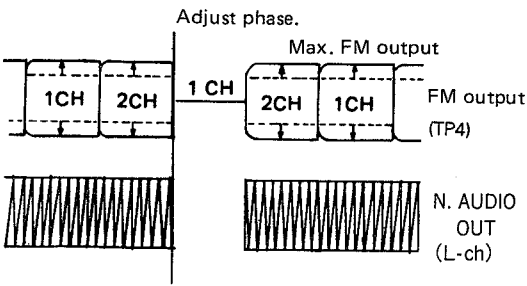
No.	Item and Reference Illustration	Description
	<p>The tape transport system has been adjusted precisely at the factory and ordinarily does not require readjustment. However, adjustment may become necessary after replacement of parts that affect the tape transport as a result of long time use or breakdown.</p>	
1	<p>Guide roller</p>  <p>Fig. 2-26 Guide roller</p>	<p>In the interchangeability adjustments, the guide roller needs to adjust the height to keep FM waveform linear both in the tape inlet and outlet portions. Although the guide roller can be turned by an ordinary (–) screwdriver, it is necessary to loose the setscrew under the guide roller (by use of a 1.25 mm hex. wrench) beforehand.</p> <p><b>Note:</b> Be careful not to loosen the setscrew too much since it cause not only unstable tape transport but also impossibility of further adjustments.</p>
2	<p>Impedance roller</p>  <p>Fig. 2-27 Impedance roller</p>	<p>It takes a considerable time until tape transport becomes stable at the tape inlet of the drum since it is a comparatively long distance between the tape outlet of the cassette and tape inlet of the drum. Therefore, stable tape transport is speeded by adjusting the tape travelling height in the course of the transport. After the supply guide roller is adjusted, adjust the tape travelling height so that it runs along the lower flange of the impedance roller. For this adjustment, use a metric nutdriver (5.5 mm) to turn the top of the impedance roller. (See Fig. 2-27.)</p> <p><b>Note:</b> Do not turn the nut excessively since it disturbs FM waveform at the rise.</p>
3	<p>A/C head</p>  <p>Fig. 2-28 A/C head</p>	<p>After the take-up guide roller adjustment, confirm that tape is smoothly transported along the lower flange of the take-up guide pole. (See Fig. 2-28.)</p>

No.	Item and Reference Illustration	Description
4	<p data-bbox="124 283 327 317">Take-up guide pole</p> <div data-bbox="180 415 593 703">  <p data-bbox="539 675 582 703">NG</p> </div> <p data-bbox="215 725 539 752"><b>Fig. 2-29</b> Take-up guide pole</p>	<p data-bbox="687 283 1391 471">While playing the end portion of E-240 tape, confirm that the tape is smoothly running along the lower flange of the take-up guide pole. To adjust the height of the take-up guide pole, set the deck to the Play mode and disadjust the height to wrinkle tape around the lower flange. Then adjust the height of the guide pole so correctly that the tape is not wrinkled in the travelling.</p> <p data-bbox="687 471 1391 532">Confirm smooth tape transport also in the Play, S. REV, S. FWD, REV, Play (X1), Still, REC and 24 H modes respectively.</p>

## 2.12 CHECK AND ADJUSTMENT OF INTERCHANGEABILITY

No.	Item and Reference Illustration	Description
1	<p>Prior to use of the alignment tape, confirm normal tape transport by use of any tape other than the alignment tape.</p> <hr/> <p>FM waveform</p> <p>– Standard of video FM waveform –</p>  <p><b>Fig. 2-30</b> Interchangeability 1 - FM waveform</p> <p>Drum entrance</p>  <p><b>Fig. 2-31</b> Interchangeability 2 FM waveform at drum entrance</p> <p>Drum exit</p>  <p><b>Fig. 2-32</b> Interchangeability 3 FM waveform at drum exit</p>	<p>For check and adjustment of FM waveform, use the stairstep signal of the MHPE alignment tape besides an oscilloscope connected with the test point (TP4 on PRE/REC board) on the video PB circuit for observing FM waveform. The oscilloscope should be supplied with flipflop signal from TP7 on D/C SERVO board for external minus trigger (GND connection to TP GND1 on PRE/REC board).</p> <ol style="list-style-type: none"> <li>1) With the MHPE alignment tape being played back, adjust the tracking control to maximize the FM waveform output and confirm that waveform satisfies the conditions mentioned in the left, namely, in the relations of the minimum output (b) in the center, minimum output (c) at the drum entrance and minimum output (d) at the drum exit to the maximum output (a).</li> <li>2) Adjustment is required not only in the instance that the above conditions are not satisfactory but also in the case where FM waveform does not vary linearly as a whole. If so, slight deviation in tracking causes partial level drops and noise in the picture. In such a case, proceed to check next item while performing adjustment depending on the situation.</li> <li>3) Adjusting the tracking control to vary FM waveform output from the maximum to the minimum and vice versa, confirm that the FM waveform change is mostly in parallel in the drum entrance portion. When it changes in seesaw shape, the height of the supply guide roller is improper (in other words, tape incorrectly runs on the leader surface of the drum at the tape inlet of the drum). This needs adjustment of the height of the supply guide roller so that the waveform change becomes as parallel as possible.</li> <li>4) The same can be said about the tape outlet of the drum, namely, FM waveform changes mostly in parallel in this side, too. Adjust the height of the take-up guide roller as the need arises.</li> <li>5) Fine adjust the guide rollers to make FM waveform as parallel and linear as possible on the whole of the waveform.</li> <li>6) After the height adjustment of the guide rollers, confirm that the tape is not wrinkled and damaged around the both guide poles of the supply and take-up side. When tape is wrinkled or damaged around the supply guide pole, adjust the height of the guide pole so that the tape runs correctly on the lower flange of the guide pole. This adjustment must be done precisely since it has a great influence on the rise time of FM waveform.</li> <li>7) After tightening the setscrew, again confirm the FM waveform.</li> </ol>

No.	Item and Reference Illustration	Description
2	<p data-bbox="116 271 660 360">Improper position of the A/C head causes dropdown or poor S/N ratio in audio output, or misaligned servo without pickup of control signal when recorded tape is played back. To observe audio signal, connect an oscilloscope to the AUDIO OUT terminal directly.</p> <hr/> <p data-bbox="116 405 213 427">A/C head</p>  <p data-bbox="181 1151 533 1211"><b>Fig. 2-33</b> Interchangeability 4 A/C head adjustment</p>	<p data-bbox="687 394 1390 483"><b>Note:</b> Before proceeding to the following adjustments, confirm that the inclination of the A/C head is within 0.1 mm with the parallel check plate.</p> <ol data-bbox="687 483 1390 954" style="list-style-type: none"> <li>1) Play back the MHPE alignment tape (audio 6 kHz segment).</li> <li>2) Turn the screw ③ to maximize audio output.</li> <li data-bbox="687 551 927 573">– Azimuth adjustment –</li> <li>3) Alternately turn the screws ①, ② and ③ slightly (at an angle of 45° once) in the same direction to change the height of the A/C head gradually, and finally adjust for the maximum audio output. At that time, make sure to confirm that audio output is maximum at the adjusted position while changing the head height up and down little by little. Again confirm the correct inclination of the A/C head with the parallel check plate.</li> <li>4) After confirmation of FM waveform, tighten the setscrew under the guide roller. Again check the FM waveform after tightening the setscrew since it may change by turning the setscrew.</li> <li>5) Adjust the height of the take-up guide pole correctly.</li> </ol>

No.	Item and Reference Illustration	Description
3	<p>When X-value is incorrectly adjusted, it results in time lag between reproduced image and sound when tape recorded by a VTR whose X-value is correctly adjusted is played back. This is more clearly observed in X3 PB mode than the standard PB mode.</p> <p>Connect a probe of an oscilloscope to a test point (TP4 or TP3 [for 3X mode] on the PRE/REC board) on the video PB circuit and the other probe to the NORMAL AUDIO OUT for observing FM waveform. In addition, set the tracking control to the center position.</p> <hr/> <p>Control head phase (X-value)</p>  <p><b>Fig. 2-34</b> Interchangeability 5 Control head phase adjustment</p>	<ol style="list-style-type: none"> <li>1) Play back the MBPE-X alignment tape.</li> <li>2) Slightly loosen the screws ④ and ⑤ of the A/C head, and put the A/C head positioning jig (PUJ47351-2) on the screw ④ while inserting the jig's pin into the hole nearby the screw. (See Fig. 2-33.)</li> <li>3) Adjust the position of the A/C head so that both phases of audio waveform and FM waveform coincide with each other in the non-recorded part and the FM output becomes nearly the maximum.</li> <li>4) Remove the positioning jig and then tighten the screws ④ and ⑤.</li> <li>5) Play back the MHPE alignment tape, and adjust the tracking control while confirming the maximum FM waveform at the center click position.</li> <li>6) When the FM waveform is not maximum with the tracking control set at the center position in playback of the MHPE alignment tape, move the A/C head to FM MAX position nearest the position obtained in the above step 3).</li> <li>7) Play back the MHPE-L alignment tape.</li> <li>8) Adjust R60 (DC Servo board) to maximize so that the FM output level.</li> </ol>
4	Final check	<ol style="list-style-type: none"> <li>1) Input video signal (B/W signal is preferable) to record it, and play it back to confirm that the PB waveform meets the standard of video FM waveform (see Fig. 2-30). Perform this check both in the standard and X3 PB modes.</li> <li>2) Referring to the Section 3 Electrical Adjustment, proceed to check and adjust the servo circuit, video circuit and audio circuit totally.</li> </ol>





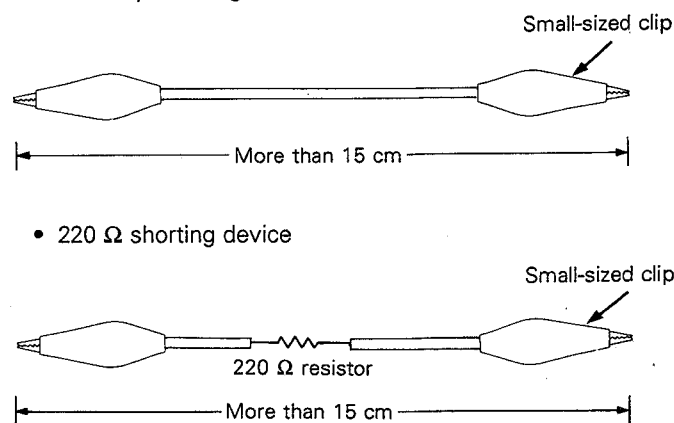
## SECTION 3 ELECTRICAL ADJUSTMENT

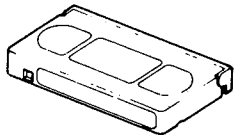
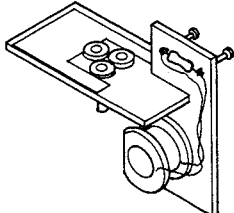
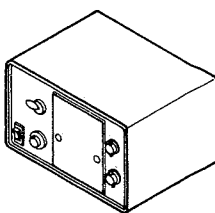
### 3.1 PRECAUTION

1. Before proceeding to electrical adjustment  
Electrical adjustments described in this section will be performed after replacement of mechanism parts and video heads when they are worn and faulty or when there is something wrong in the electrical circuits. However, it is the most important to confirm that the objective item is out of the specifications first.
2. For items and parts that need correct mechanical adjustment, it is the first condition to confirm the mechanical correctness of them.
3. To proceed to check and adjust items described in this section, do it with all the boards installed practically.
4. Do not turn off the power switch unreasonably all the time tape is running. It causes tape damage.
5. When any warning message is displayed in the screen, immediately turn off the power switch and inspect the cause of the warning. Make sure to proceed to further work after the cause is completely removed.

### 3.2 REQUIRED TEST EQUIPMENT AND TOOLS

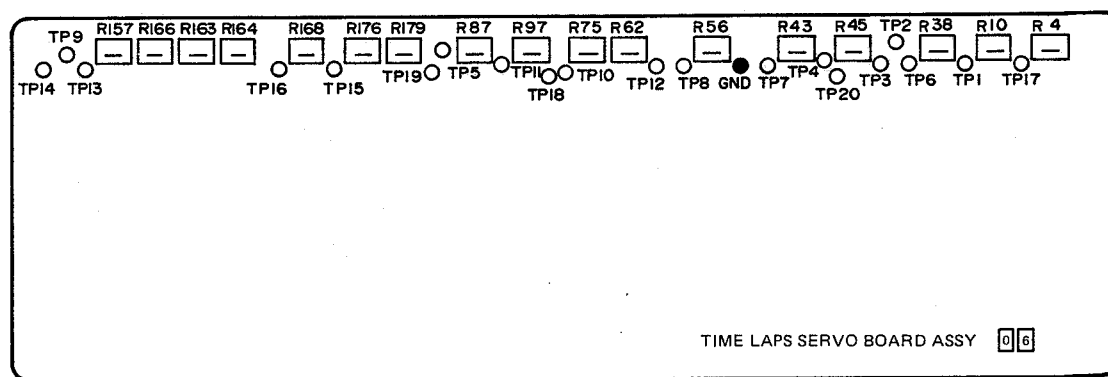
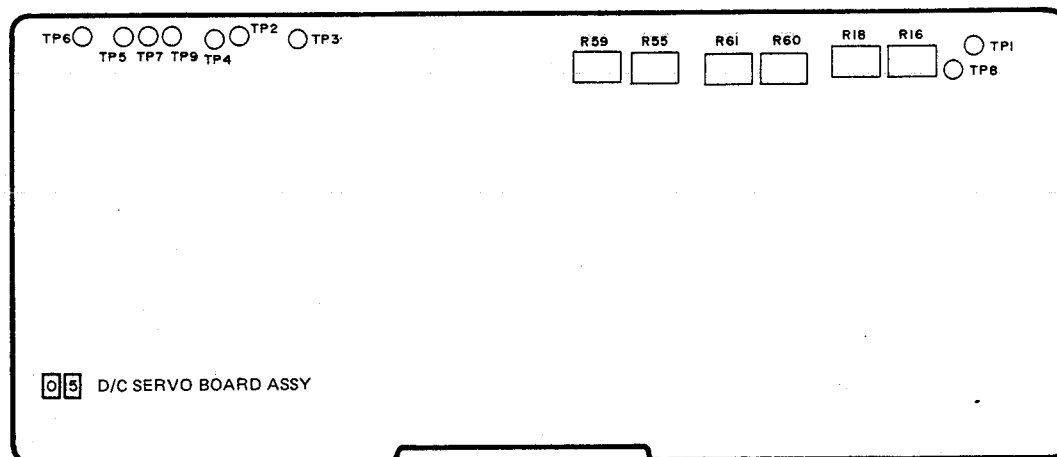
1. To perform the electrical adjustment described in this section correctly and with ease, the following special tools and test equipment are necessities (see Fig. 3-1). Checkup and adjustment without them result in incorrect adjustment after repeated trial and error.
2. Besides the special tools and test equipment, the following instruments and general tools are required.
  - Frequency counter (sensitivity for more than 10 MHz and less than 100 mV with high input resistance)
  - Video signal generator (TG-7/2, Model 1410, PGJ-05003 or equivalent)
  - Waveform monitor (1485R or equivalent)
  - Digital voltmeter (readable up to 1 mV DC)
  - Sweep signal generator (100 kHz to 10 MHz)
  - Oscilloscope (dual-trace type, for more than 50 MHz)
  - TV monitor
  - Vectorscope (521A or equivalent)
  - Audio tester
  - Jitter display (Meguro MK6110A or equivalent)
3. Shorting device for convenience  
For shortcircuiting test pins
  - Ordinary shorting device



Alignment tapes MHPE, MHPE-L, MHVE-2	Head resonance adjusting coil PTU94004A	Carrier checker PGJ05008
MHPE, MHPE-L, MHVE-2 MBVE-3H, MHVE-2H	PTU94004A	PGJ05008
		

**Fig. 3-1** Special test equipment

### 3.3 SERVO CIRCUIT



Symbol	P.W. Board
	D/C SERVO
	T.L SERVO
	MECHA-C.T.L
	PRE/REC AMP

#### Note:

1) Unless otherwise indicated, perform all adjustments with the switches and controls set as follows.

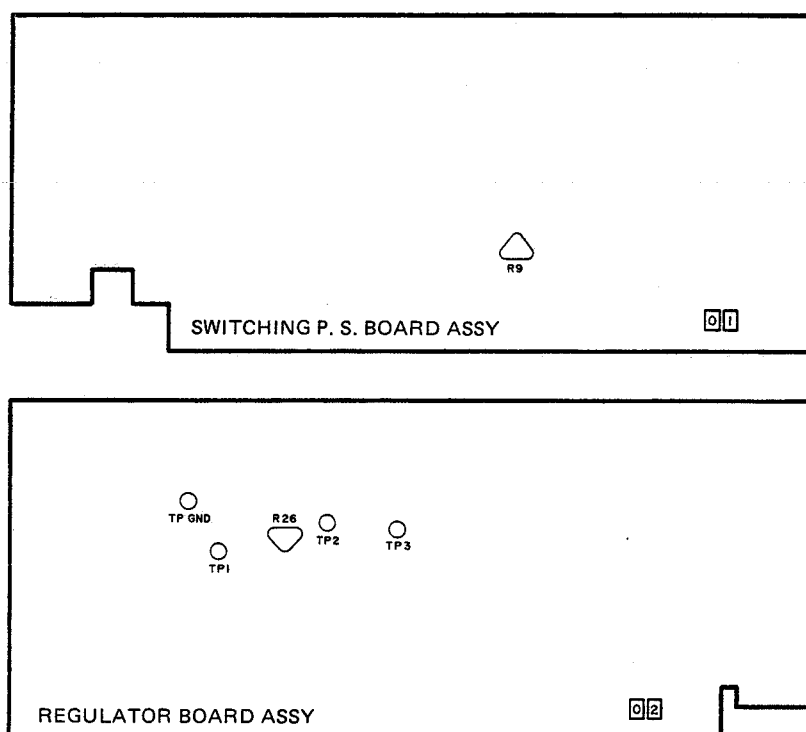
- |  |   |   |
|--|---|---|
| <ul style="list-style-type: none"> <li>• Switches on Front panel</li> <li>REC/PB MODE : SP</li> <li>(SP(3H), LP(6H), TL24/48/72/120/168/240/480/960)</li> <li>ON SCREEN : OFF</li> <li>REPEAT REC/PLAY : OFF</li> <li>ALARM REC : OFF</li> <li>AUTO REC : OFF</li> <li>VISS : OFF</li> <li>VIDEO MODE : AUTO</li> <li>COUNTER MEMORY : OFF</li> <li>REMOTE : LOCAL</li> <li>INPUT SELECT : LINE</li> </ul> | <ul style="list-style-type: none"> <li>• On-Screen Memory SW</li> <li>ALARM MODE : SP</li> <li>ALARM TIME : MANUAL</li> <li>CAM SW : 1 FRAME</li> <li>SERIES REC : ON</li> <li>SKIP MODE : 4</li> </ul> | <ul style="list-style-type: none"> <li>• Switches on Rear panel</li> <li>DIP switch 2 : OFF</li> <li>DIP switch 1, 3 – 8 : ON</li> <li>V. Pulse : ON</li> </ul> |
|--|---|---|

2) When the above setting is changed for adjustment/checkup, reset it to the original position as mentioned above.

3) Proceed to any adjustment and checkup 5 minutes or more after the power is turned on.

4) Unless otherwise specified, use VHS E-180, SE-180 PRO cassette tape.

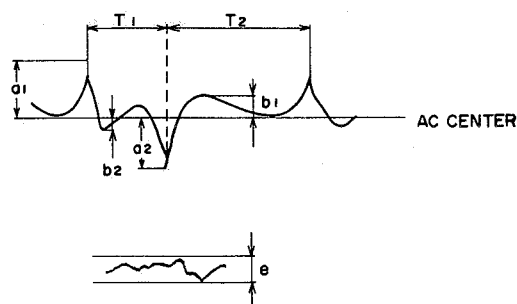
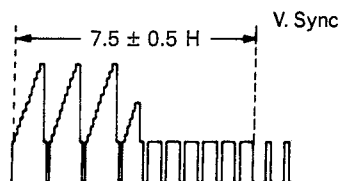
### 3.4 REGULATOR CIRCUIT



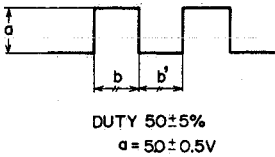
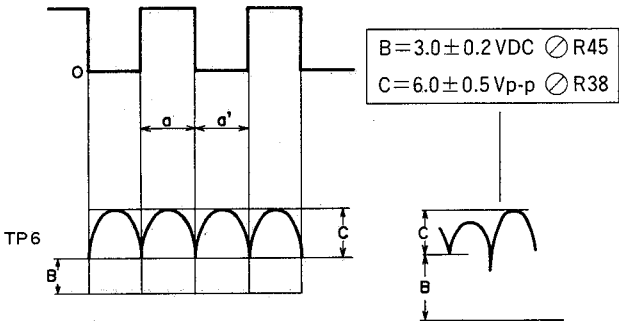
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
1	5 V DC output voltage	TP1	R26 (SWD 5 V) [REGULATOR board 02]	Color bar	REC(SP)	1) Connect a digital voltmeter to TP1 and TP-GND. 2) In the REC mode, adjust R26 to obtain the $5.3 \pm 0.05$ V as the voltage.
2	SEMI-REG. 15 V output voltage	CN11 pin 1	R9 (SEMI REG 15V) [SWITCHING board 01]	Color bar	REC(SP)	1) Connect the digital voltmeter to pin 1 of CN11 and TP-GND. 2) In the REC mode, adjust R9 to obtain $16.2 \pm 0.2$ V as the voltage.

**Note:** • For taking out the switching regulator assembly, first remove three screws retaining the assembly and remove a screw (SBSB3006Z) from the bottom, and then pull the assembly upward.

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
1	SP PB switching point	VIDEO OUT	R55 [0][5]	MHPE	PB	1) Connect an oscilloscope to TP7 of the D/C SERVO board [0][5] for external trigger. 2) Set the oscilloscope for the minus (-) slope. 3) Press the tracking buttons (+, -) to maximize the FM waveform. 4) Adjust the trigger point to be $7.5 \text{ H} \pm 0.5 \text{ H}$ from the V. sync by R55. 5) Set the oscilloscope for the plus (+) slope and press the tracking buttons (+, -) to maximize the FM waveform. 6) Confirm that the channel difference is within 1 H in comparison with the value obtained in the above step 4).
				MHPE-L	PB	7) Set the oscilloscope for the plus (+) slope. 8) Confirm that the trigger point is $6.5 \text{ H} \pm 1.5 \text{ H}$ from the V. sync.
2	CTL pulse check	TP3 [0][5]	—	MHPE-L	PB	1) Connect the oscilloscope to TP7 of the D/C SERVO board [0][5] for external trigger. 2) Connect the probe of the oscilloscope to TP401 and confirm that the positive and negative pulses ( $a_1$ , $a_2$ ) shown in the left figure are $0.25 \text{ Vp-p}$ or more respectively. 3) The relation between the time axes of the positive and negative pulses is $t_1 < t_2$ . 4) Confirm that values of $b_1$ and $b_2$ shown in the figure including plunging noise are $0.1 \text{ Vp-p}$ respectively.
				Still		5) Confirm that noise level "e" is less than 100 mV in the Still mode. 6) Again confirm that the results of the steps 3) and 4) are still satisfactory.
				REC (LP) ↓ PB		7) Record the stairstep signal and play it back to confirm that the same results as the steps 3) and 4) are obtained.
3	Speed data F-V	TP15 [0][6]	R176 [0][6]	Color bar	REC (LP)	1) Connect a digital voltmeter to TP15 of the TIME LAPSE SERVO board [0][6]. 2) Set the deck to the 6H REC mode. 3) Confirm that the digital voltmeter reads $2.1 \pm 0.1 \text{ V DC}$ . If not, adjust R176.
			R179 [0][6]		REC (SP)	4) Set the mode to the Normal REC. (3H) 5) Confirm that the digital voltmeter reads $2.1 \pm 0.1 \text{ V DC}$ . If not, adjust R179.

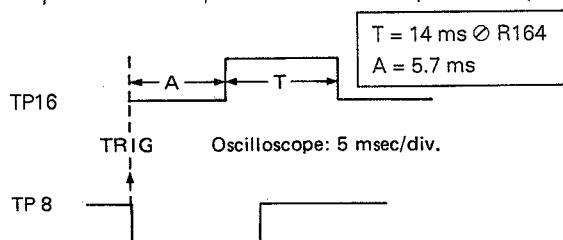
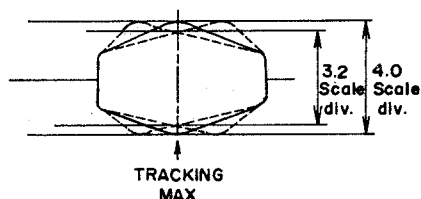
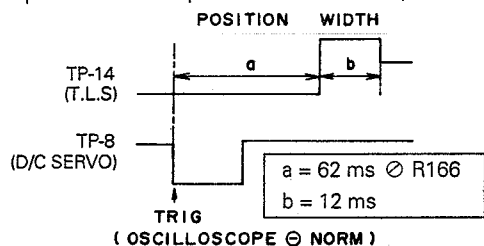


No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
4	V. pulse check	TP7 [0] [5] VIDEO OUT (75 Ω terminated)	—	MHVE-2 (Color bar)	Search (X2)          PB (SP)	<p>1) Connect the oscilloscope to TP7 of the D/C SERVO board [0][5] for external trigger (minus slope).</p> <p>2) Change the setting of the V. PULSE switch to ON.</p> <p>3) Play back the color bar signal of the MHV-2 alignment tape in the Search (X2) mode.</p> <p>4) Referring to the left figure, on the assumption that the period between the fall of D. FF signal from TP7 and the fall of the V. pulse from the VIDEO OUT is T<sub>1</sub>, width of the V. pulse is T<sub>2</sub>, and the waveform of the VIDEO OUT pulse is a and b, confirm that the respective items meet the following specifications.  T<sub>1</sub> = 290 ± 30 μsec (4.5 ± 0.5 H)  T<sub>2</sub> = 190 ± 20 μsec (3.0 H)  a = 0 ± 30 mV  b = 290 ± 40 mV</p> <p>5) Change the V. PULSE switch setting to OFF.</p> <p>6) While playing back the color bar signal of the alignment tape, confirm that there is no V. pulse in the VIDEO OUT waveform.</p> <p>7) Again change the setting of the V. PULSE switch to ON.</p> <p>8) While playing back the color bar signal of the alignment tape, confirm that there is V. pulse added into the waveform as same as the above step 4).</p> <p>9) Return the V. PULSE switch to the OFF setting.</p>
5	Index check	TP3 [0] [5]	—	Color bar	REC (TL24H) ↓ REC [(Nor- mal)] ↓ PB	<p>1) Connect the oscilloscope to TP3 of the D/C SERVO board.</p> <p>2) Turn on the ALARM REC switch to record in the 24H time lapse mode.</p> <p>3) Shortcircuit the ALARM IN terminal by wire. At the same time, reset the tape counter.</p> <p>4) Check that the ALARM LED on the front panel is lighting to indicate the normal REC mode.</p> <p>5) After recording in the normal REC mode for about 10 counts by the tape counter, confirm that the deck is in the TL 24H REC mode.</p> <p>6) Change the mode to the Search FF with the counter indication around "9990", and confirm that the "VISS" appears in the display at that time.</p> <p>7) In playback of the tape from the beginning of the recording, confirm that T<sub>1</sub> is 2.5–3.0 (27.5 ± 2.5%) for about 2 seconds just after the mode shift from the TL24H to the normal REC on the assumption that T<sub>2</sub> = 10.</p> <p>8) On the same assumption that T<sub>2</sub> = 10, confirm that T<sub>1</sub> = 5.5–6.5 (60 ± 5%) in the later period following 2 seconds after the mode shift.</p>

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
6	Capstan FG duty	TP3 0 6 TP4 0 6  	R10 0 6 R4 0 6	Color bar	REC(SP)	1) With the oscilloscope connected to TP3, adjust R10 to obtain the following results referring to the left figure. $a = 5 \pm 0.5 \text{ V}$ $b = b'$ (Duty: $50 \pm 5\%$ ) 2) Connect the oscilloscope to TP4 and perform the same adjustment as the step 1) by R4. <b>Note:</b> When measured value is inconstant, adopt an average value of the fluctuation.
7	Stop servo level	TP6 0 6 TP GND 0 6  $a = a' \text{ } \textcircled{R43}$	R43 0 6	—	REC	1) Connect the oscilloscope to TP6, and set the deck to the REC mode with E180 cassette tape loaded. 2) Adjust R43 so that $a = a'$ ( $50 \pm 5\%$ ) in the waveform of TP6 (see the following figure).
			R45 0 6 R38 0 6	—	REC	3) Alternately adjust R38 and R45 so that the waveform of TP6 satisfies the following specifications. $B = 3.0 \pm 0.2 \text{ V}$ $C = 6.0 \pm 0.5 \text{ Vp-p}$ <b>Note:</b> • When the waveform has stepping difference in the level, adjust according to the higher level. • When there is fluctuation in the waveform, adjust according to the center level. • Fine adjustment of R38 and R45 will be required for the later item No. 11.
		TP7 0 6 TP GND 0 6	—	Color bar	Stop	4) Connect the oscilloscope to TP7 and confirm no level fluctuation in the waveform (with constant voltage).
8	Slow F-V converter	TP8 0 6 TP GND ↓ Digital volt-meter  $\text{TP8 } 3.9 \pm 0.05 \text{ V DC}$	R56 0 6	MHPE	PB	1) Adjust R56 to obtain $3.9 \pm 0.05 \text{ V DC}$ as voltage at TP8.
9	F-V converter Center voltage	TP12 0 6 TP GND ↓ Digital volt-meter  $\text{TP12 } 2.5 \pm 0.1 \text{ V DC}$	R62 0 6	MHPE	PB	1) Adjust R62 to obtain $2.5 \pm 0.1 \text{ V DC}$ as voltage at TP12.

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
10	F-V limiter	TP11 [0][6] TP5 [0][6]	R87 [0][6] R97 [0][6]	Color bar	REC (TL24H)	<p>1) Connect the CH-1 probe of the oscilloscope to TP11 and set it for the normal sweep mode with internal trigger (plus slope).</p> <p>2) Change the setting of the REC MODE switch to TL24H.</p> <p>3) Adjust R87 so that the width "a" in the waveform of TP11 is 2.5 msec (see the left figure).</p> <p><b>Note:</b> For the above adjustment, use the oscilloscope set to 0.5 msec/div range.</p> <p>4) Adjust R97 so that the width "a" in the waveform of TP5 is 2.5 msec:</p>
11	TL Tape FWD voltage	TP13 [0][6] TP18 [0][6]	R75 [0][6]	Color bar	REC (TL24H)	<p><b>Note:</b> This item is to adjust the amount of tape forwarding in the time lapse REC mode to match it for 1 field. If this is incorrectly adjusted, it causes unstable servo in the SP PB mode.</p> <p>1) Change the setting of the REC MODE switch to TL24H.</p> <p>2) Connect the oscilloscope's probes to TP13 and TP18 of the TIME LAPSE SERVO board respectively.</p> <p>3) Adjust R75 so that the rise of TP18's waveform is <math>4 \pm 1</math> msec behind the rise of TP13's waveform. (NORM mode; Trigger with TP13 signal on plus (+) slope)</p> <p>4) Connect the oscilloscope's probes to TP8 and TP10.</p> <p>5) Referring to the left figure, confirm that the portion "a" of the waveform is <math>3.2 \pm 0.3</math> V DC while "b" is <math>1.4 \pm 0.15</math> V.</p>
		TP1 [0][6] TP18 [0][6]	R75 [0][6] R38 [0][6] R45 [0][6]	Color bar	REC (TL24H)	<p>6) Connect the oscilloscope's probes to TP18 and TP1.</p> <p>7) Confirm that TP1's waveform shows the lowest level at the rise of TP18's waveform. If not, adjust R75. In that event, make sure that the item 3).</p> <p>8) Confirm that TP1's waveform is stable after the rise of TP18's waveform. If it is unstable, stabilize the waveform by adjusting R38 and R45.</p> <p>• Stable waveform: Adjust R38 and R45 to confirm it.</p> <p><b>Note:</b> Perform the adjustment with the beginning of the tape.</p>

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
12	TL REC CTL position	TP14 016 TP8 015	R166 019	Color bar	REC (TL24H)	1) Set the REC MODE switch to TL24H. 2) Connect the CH-1 probe of the oscilloscope to TP14 on the TIME LAPSE SERVO board and the CH-2 probe to TP8 (D/C Servo) on the same for external trigger (minus slope, normal mode). 3) In the REC mode, adjust R166 so that $a = 62 \pm 0.5$ msec while confirm to obtain $12 \pm 0.5$ msec for b. 4) Connect the CH-1 probe to TP4 on the PRE/REC board and the CH-2 probe to TP7 of the D/C SERVO board (TP7 for external trigger).
		TP4 413 TP7 015		Color bar	REC (TL24H) ↓ SP PB	5) In the SP PB mode, play back the tape by the portion recorded in the TL 24H REC mode. (Press the Tracking button to maximize the FM level with care not to taper the waveform, and set the FM level to be for 4 scale divisions of the oscilloscope. 6) Press the Tracking button to maximize the FM level with care not to taper the waveform, and set the FM level to be for 4 scale divisions of the oscilloscope. 7) Reset the Tracking button to the preset position, and confirm that the FM level is more than 3.2 scale divisions as that time. 8) If not, vary the value of "a" in the step 3) while repeating the steps 4) through 7) to obtain satisfactory results.
13	TL skew	TP16 016	R164 016	Color bar	REC (TL24H)	<b>Note:</b> Record it on the beginning portion of recording tape. 1) Connect a TV monitor to the VIDEO OUT (when a jitter meter is available, connect it between the two). 2) Connect an oscilloscope's probe to TP16 of the TIME LAPSE SERVO board with external trigger form TP8 of the D/C SERVO board (minus slope, normal mode). 3) Set the deck to the TL24H REC mode, and adjust R164 as follows. R164 to obtain $14 \pm 0.5$ msec for T. Confirm to obtain $5.7 \pm 0.5$ msec for A.
			R163 016	Color bar	REC (TL48)	4) Record the color bar signal in the TL24H REC mode, and adjust R163 so that $T = 14.0 \pm 0.5$ msec.
				Color bar	REC (TL24H) ↓ SP PB	5) Record the color bar signal in the TL24H REC mode, and play it back in the SP mode.



T = 14 ms ± R163

(To be continued on next page)

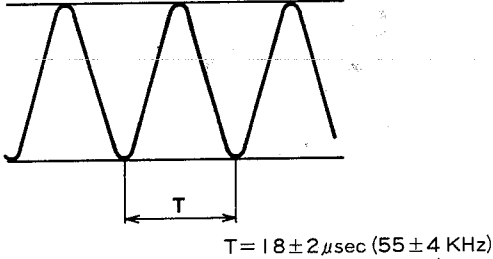




### 3.5 TIME LAPSE SLOW PB CIRCUIT

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
1	SP Slow tracking preset	VIDEO OUT ↓ TV monitor	R16 [0] [5]	Color bar	REC (S-VHS) ↓ PB (TL24H)	1) Simultaneously press the tracking buttons (+ and -) to set for tracking preset. 2) Record the color bar signal and play it back in the TL24H mode. 3) Observing a TV monitor, adjust R16 to minimize noise bar in the picture.
			R61 [0] [5]	Color bar	REC ↓ PB (X2)	4) Record the color bar signal and play it back in the X2 PB mode. 5) Observing a TV monitor, adjust R61 to minimize noise bar in the picture. <b>Note:</b> For recording, do not use the beginning and end portions of tape.
2	LP Slow tracking preset	VIDEO OUT ↓ TV monitor	R18 [0] [5]	Color bar	REC (S-VHS) ↓ PB (TL24H)	1) Set the REC MODE switch to the EP position. 2) Record the color bar signal and play it back in the TL24H mode. 3) Adjust R18 to minimize noise bar in the picture on the TV monitor screen.
			R59 [0] [5]	Color bar	REC ↓ PB (X2)	4) Record the color bar signal and play it back in the X2 PB mode. 5) Adjust R59 to minimize noise bar in the picture on the TV monitor screen. <b>Note:</b> For recording, do not use the beginning and end portions of tape.
3	V. pulse position	VIDEO OUT ↓ TV monitor	V. LOCK VR (Front panel)	Color bar	REC ↓ PB ↓ Still	1) Record the color bar signal and play it back in the Still mode. 2) Adjust the V. LOCK VR on the front panel to minimize vertical trembling in the monitor screen.

### 3.6 AUDIO CIRCUIT

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
1	FE head	TP663 <span style="border: 1px solid black; padding: 0 2px;">0</span> <span style="border: 1px solid black; padding: 0 2px;">4</span> TP632 (GND)	—	Color bar	REC	<p>1) Connect the oscilloscope to TP663 and confirm no distortion in the waveform of FE head oscillation. (See the left figure.)</p> <p>2) At that time, confirm that the period (T) of the waveform is <math>18 \pm 2 \mu\text{sec}</math>.</p>
						
2	Audio bias level	TP631 <span style="border: 1px solid black; padding: 0 2px;">0</span> <span style="border: 1px solid black; padding: 0 2px;">4</span> TP632 (GND) ↓ Audio tester	R641 <span style="border: 1px solid black; padding: 0 2px;">0</span> <span style="border: 1px solid black; padding: 0 2px;">4</span>	Non input signal (AUDIO IN)	REC	<p>1) Connect a millivoltmeter to TP631 and TP632 (GND).</p> <p>2) Adjust R641 so that the level is <math>2.4 \pm 0.2 \text{ mV rms}</math> in recording without input signal.</p>
		Audio bias level = $2.4 \pm 0.2 \text{ mVrms}$				
3	Audio bias leakage	AUDIO OUT ↓ Audio tester	—	Non input signal (AUDIO IN)	REC	<p>1) Confirm that the level at the AUDIO OUT is less than -35 dBs in recording without input signal.</p>
4	Audio PB level	AUDIO OUT ↓ Audio tester	R633 <span style="border: 1px solid black; padding: 0 2px;">0</span> <span style="border: 1px solid black; padding: 0 2px;">4</span>	1 kHz/-8 dBs (AUDIO IN)	REC ↓ PB	<p>1) Supply sine waveform signal of 1 kHz/-8 dBs to the AUDIO IN terminal.</p> <p>2) Record the input signal, and adjust R633 to obtain -6 dBs as the AUDIO OUT level while playing back the recorded signal.</p>

#### Note:

1) Unless otherwise indicated, perform all adjustments with the switches and controls set as follows.

• Switches on Front panel

REC/PB MODE : SP  
(SP(3H), LP(6H), TL24/48/  
72/120/168/240/480/960)  
ON SCREEN : OFF  
REPEAT REC/PLAY : OFF  
ALARM REC : OFF  
AUTO REC : OFF  
VISS : OFF  
VIDEO MODE : AUTO  
COUNTER MEMORY : OFF  
REMOTE : LOCAL  
INPUT SELECT : LINE

• On-Screen Memory SW

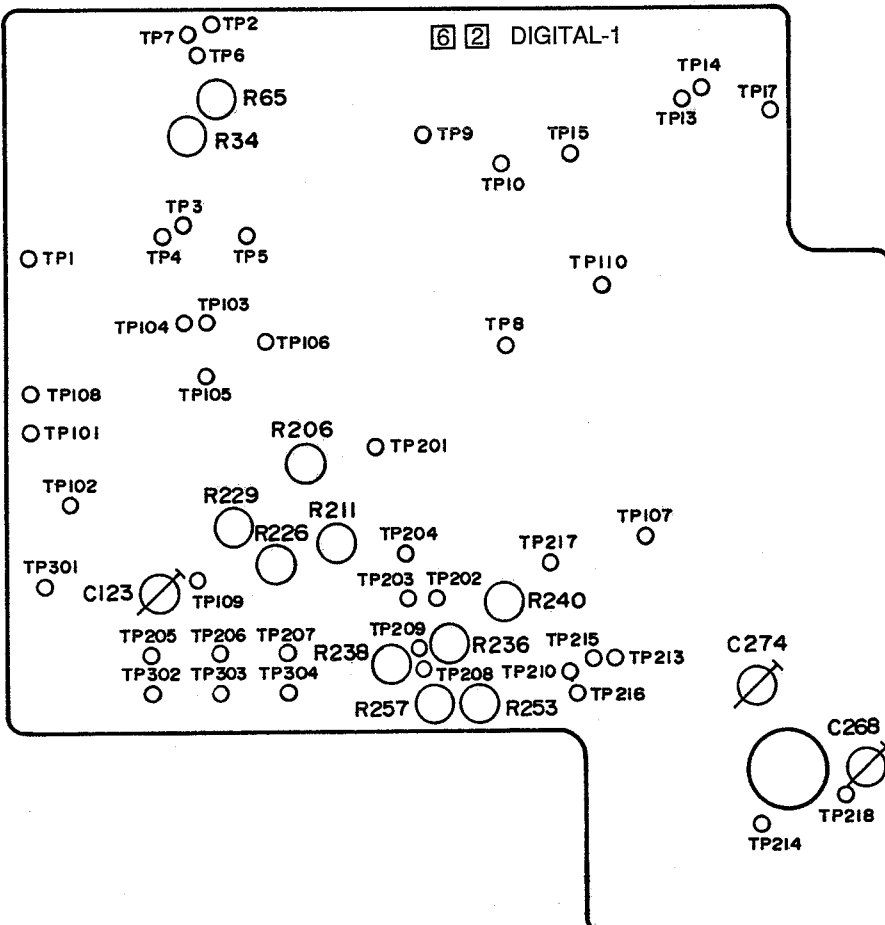
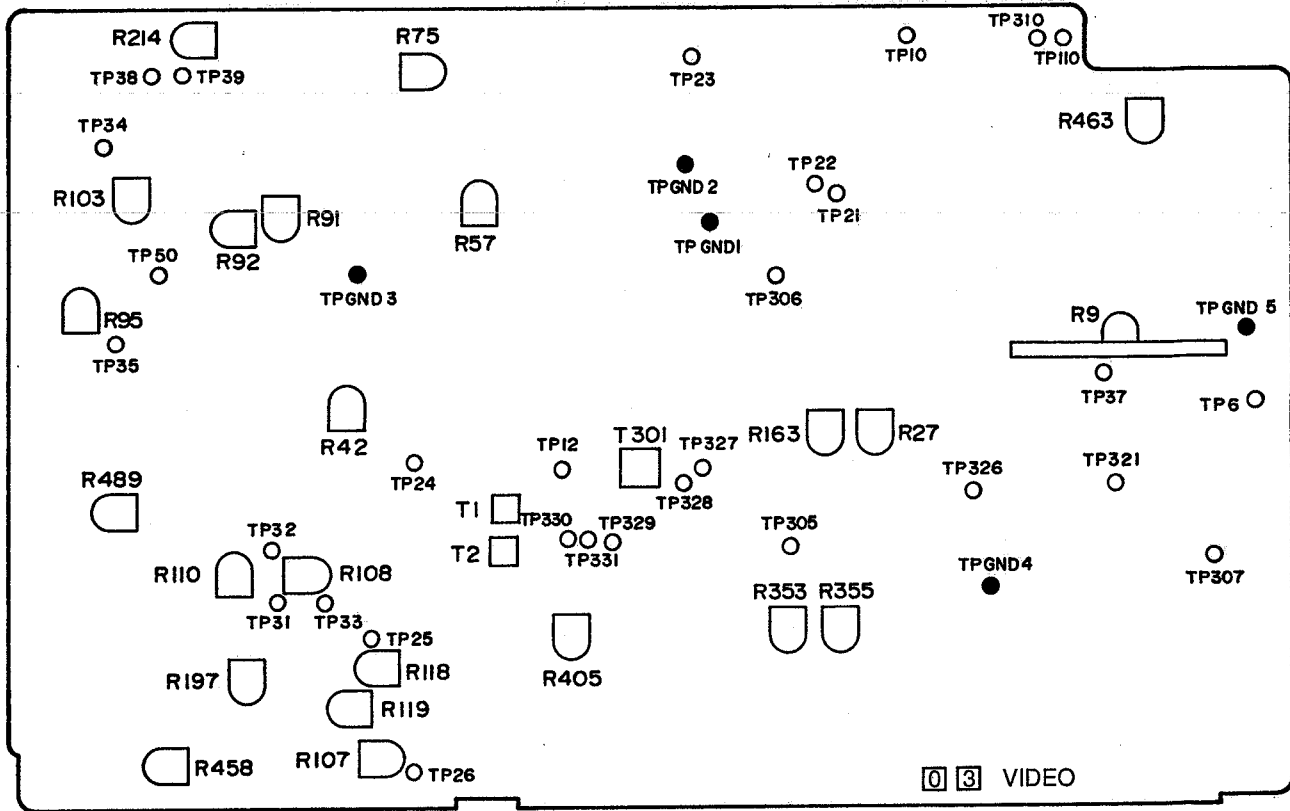
ALARM MODE : SP  
ALARM TIME : MANUAL  
CAM SW : 1 FRAME  
SERIES REC : ON  
SKIP MODE : 4

• Switches on Rear panel

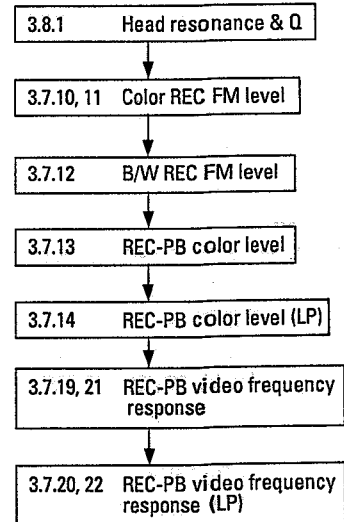
DIP switch 2 : OFF  
DIP switch 1, 3 - 8 : ON  
V. Pulse : ON

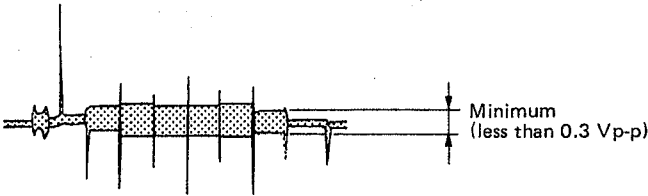
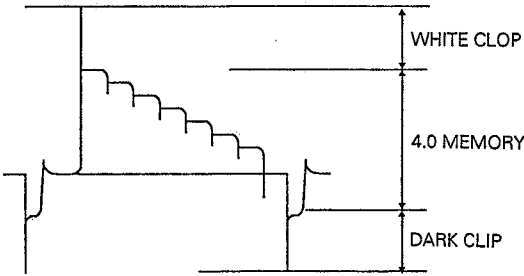
- When the above setting is changed for adjustment/checkup, reset it to the original position as mentioned above.
- Proceed to any adjustment and checkup 5 minutes or more after the power is turned on.
- Unless otherwise specified, use VHS E-180, SE-180 PRO cassette tape.
- 0 dBs = 0.775 Vrms = 2.19 Vp-p

### 3.7 VIDEO CIRCUIT



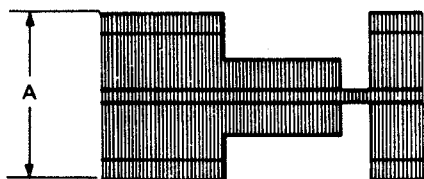
**Note:** Adjustment procedure after Upper Drum replacement.



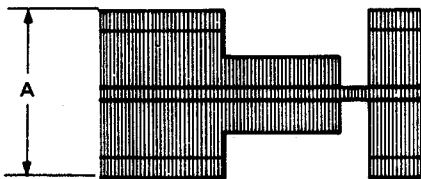
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Check and Adjustment
1	EE level	VIDEO OUT (75 $\Omega$ terminated)	R458 [0] [3]	Color bar	S-VHS SP (3H) EE	1) Terminate the VIDEO OUT by 75 $\Omega$ resistance. 2) Adjust R458 so that the level is 1.0 Vp-p.
2	V comb level	TP25 [0] [3] TP26 [0] [3]	R107 [0] [3]	Color bar	S-VHS SP (3H) EE	1) Connect one channel of a dual trace oscilloscope to TP25 and the other channel to TP26. 2) Adjust R107 so that TP25 and TP26 become the same level.
3	2H delayed chroma	TP31 [0] [3] TP32 [0] [3]	R110 [0] [3] T2 [0] [3]	Color bar	S-VHS SP (3H) EE	1) Connect CH-1 of a dual trace oscilloscope to TP31 and CH-2 to TP32. 2) Set VOLT/DIV controls of both channels to the same range (50 mV). 3) Invert CH-2 and use ADD mode. 4) Alternately adjust R110 and T2 for minimum level.
4	4H delayed chroma	TP31 [0] [3] TP33 [0] [3]	R108 [0] [3] T1 [0] [3]	Color bar	S-VHS SP (3H) EE	1) In the same manner, adjust R108 and T1 for minimum level.
5	Y comb	TP25 [0] [3]	R118 [0] [3] R119 [0] [3] R197 [0] [3]	Color bar	S-VHS SP (3H) EE	1) Connect an oscilloscope to TP25. 2) Adjust R118, R119 and R197 alternately for minimum chromatic level (less than 30 mVp-p of the magenta portion).
						
6	S-VHS White & Dark clip check	TP34 [0] [3]	—	Color bar	S-VHS SP (3H) EE	1) Connect the oscilloscope to TP34. 2) Adjust the oscilloscope so that the level between the sync tip and the 100 % white is for 4 scale divisions on the scope. 3) Confirm that the white clip level is between 4.0 and 4.8 scale divisions on the oscilloscope screen. 4) At that time, confirm that the dark clip level is between 2.4 and 3.2 scale divisions.
						

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Check and Adjustment
7	S-VHS Carrier & Deviation	TP50 [0] [3]	R57 [0] [3]	Color bar	S-VHS SP (3H) EE	<ol style="list-style-type: none"> <li>1) Connect the oscilloscope and a carrier checker as shown in the left figure.</li> <li>2) Set the selector switch of the carrier checker to S-VHS.</li> <li>3) Set the carrier checker switch to DEVI.</li> <li>4) Adjust the oscilloscope so that the level between the 5.4 MHz marker and the 7.0 MHz marker is for 8 scale divisions on the scope.</li> <li>5) Confirm that the sync tip level is <math>\pm 0.25</math> scale divisions to the level of the 5.4 MHz marker.</li> <li>6) Adjust R57 so that the 100 % white level coincides with the 7.0 MHz marker (the upper marker).</li> </ol>
8	VHS White & Dark clip check	TP35 [0] [3]	—	Color bar	VHS SP (3H) EE	<ol style="list-style-type: none"> <li>1) Connect the oscilloscope to TP35.</li> <li>2) Adjust the oscilloscope so that the level between the sync tip and the 100 % white is for 4 scale divisions on the scope.</li> <li>3) Confirm that the white clip level is between 3.2 and 4.0 scale divisions on the oscilloscope screen.</li> <li>4) At that time, confirm that the dark clip level is between 1.4 and 2.2 scale divisions.</li> </ol>
9	VHS Carrier & Deviation	TP50 [0] [3]	R75 [0] [3]	Color bar	VHS SP (3H) EE	<ol style="list-style-type: none"> <li>1) Connect the oscilloscope and a carrier checker as shown in the left figure.</li> <li>2) Set the selector switch of the carrier checker to VHS.</li> <li>3) Set the carrier checker switch to DEVI.</li> <li>4) Adjust the oscilloscope so that the level between the 3.8 MHz marker and the 4.8 MHz marker is for 8 scale divisions on the scope.</li> <li>5) Confirm that the sync tip level is <math>\pm 0.40</math> scale divisions to the level of the 3.8 MHz marker.</li> <li>6) Adjust R75 so that the 100 % white level coincides with the 4.8 MHz marker (the upper marker).</li> </ol>
10	S-VHS Color REC FM level	TP6 [4] [3]	R103 [0] [3]	Color bar	S-VHS SP (3H) REC	<ol style="list-style-type: none"> <li>1) Connect the oscilloscope's probe to TP6.</li> <li>2) Record the color bar signal in the SP (3H) mode.</li> <li>3) Adjust R103 so that the pedestal level of the TP6 signal is 4.0 Vp-p.</li> </ol>
		TP5 [4] [3]	—	Color bar	S-VHS LP (6H) REC	<ol style="list-style-type: none"> <li>4) Record the signal in the LP (6H) mode.</li> <li>5) Confirm that the pedestal level of the TP5 signal is <math>3.0 \pm 0.2</math> Vp-p.</li> </ol>

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Check and Adjustment
11	VHS Color REC FM level	TP6 [4] [3]	R95 [0] [3]	Color bar	VHS SP (3H) REC	1) Connect the oscilloscope's probe to TP6. 2) Record the color bar signal in the SP (3H) mode. 3) Adjust R95 so that the pedestal level of the TP6 signal is 2.4 Vp-p.
		TP5 [4] [3]	—	Color bar	VHS LP (6H) REC	4) Record the signal in the LP (6H) mode. 5) Confirm that the pedestal level of the TP5 signal is $2.0 \pm 0.2$ Vp-p.
12	B/W REC FM level	TP6 [4] [3]	R214 [0] [3]	Gray scale	VHS SP (3H) REC	1) Set the VIDEO MODE switch to B/W. 2) Connect the oscilloscope's probe to TP6. 3) Adjust R214 so that the pedestal level of the signal is 3.0 Vp-p.
		TP5 [4] [3]	—	Gray scale	VHS LP (6H) REC	4) Record in the LP (6H) mode. 5) Confirm that the pedestal level of the TP5 signal is $2.5 \pm 0.3$ Vp-p. 6) Set the VIDEO MODE switch to AUTO.
13	SP REC/PB Color level	TP307 [0] [3]	R355 [0] [3]	MHVE-2H or MH-2H SP color bar	S-VHS SP (3H) PB	<p><b>Note: Use larger-level waveform for adjustment.</b></p> <p>1) Connect the oscilloscope to TP307 ( [0] [3] ) and TP7 of the D/C SERVO board ( [0] [5] ) for external trigger.</p> <p>2) Play back the color bar segment of the MHVE-2H alignment tape.</p> <p>3) Adjust by pressing the + and – TRACKING buttons of the front panel for maximum level of the color waveform and take a note of the higher color level "A".</p>
				Color bar	S-VHS SP (3H) REC/PB	<p>4) Set the TRACKING control of the front panel to the preset position by simultaneously pressing the + and – TRACKING buttons.</p> <p>5) Record the color bar signal and play it back. If necessary, adjust R355 before recording so that the higher level channel becomes 120 % of the noted level "A" in playback. At that time, confirm that the level difference between channels is within 3 dB. (When the higher level is for 5 scale divisions, the lower level must be for more than 3.5 scale divisions.)</p> <p><b>Note: Counterclockwise turning of R355 as viewed from the parts side decreases the level.</b></p>

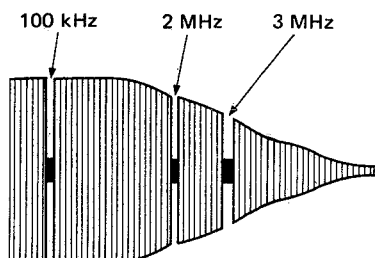


No.	Item	Check Point	Adjustment Parts	Signal	Mode	Check and Adjustment
14	LP REC/PB Color level	TP307 [0] [3]	R353 [0] [3]	MH-2H LP color bar	S-VHS LP (6H) PB	<p><b>Note: Perform the LP mode adjustment after completing adjustment for the SP mode.</b></p> <ol style="list-style-type: none"> <li>1) Connect an oscilloscope to TP307 ( [0] [3] ) and TP7 of the D/C SERVO board ( [0] [5] ) for external trigger.</li> <li>2) Play back the color bar segment of the MH-2H alignment tape.</li> <li>3) Adjust by pressing the + and – TRACKING buttons of the front panel for maximum level of the color waveform and take note of the higher color level as "A".</li> </ol>
				Color bar	S-VHS LP (6H) REC/PB	<ol style="list-style-type: none"> <li>4) Set the TRACKING control of the front panel to the preset position by simultaneously pressing the + and – TRACKING buttons.</li> <li>5) Record the color bar signal and play it back. If necessary, adjust R353 before recording so that the higher level channel becomes 110 % of the noted level "A" in playback. At that time, confirm that the level difference between channels is within 3 dB. (When the higher level is for 5 scale divisions, the lower level must be for more than 3.5 scale divisions.)</li> </ol> <p><b>Note: Clockwise turning of R353 as viewed from the parts side decreases the level.</b></p>
15	PB Y level	VIDEO OUT (75 $\Omega$ terminated)	R92 [0] [3]	Color bar	S-VHS SP (3H) REC/PB	<ol style="list-style-type: none"> <li>1) Connect the oscilloscope's probe to the VIDEO OUT with 75 <math>\Omega</math> terminator.</li> <li>2) Record the color bar signal and play it back. Adjust R92 to obtain 1.0 Vp-p as the PB Y level.</li> </ol>
			R91 [0] [3]	Color bar	VHS SP (3H) REC/PB	<ol style="list-style-type: none"> <li>3) Set for the VHS mode (use the S-VHS button).</li> <li>4) In the same manner, adjust R91 to obtain 1.0 Vp-p as the PB Y level.</li> </ol>
16	Sharpness preset	TP24 [0] [3]	R42 [0] [3]	MBVE-3H	S-VHS SP (3H) PB	<ol style="list-style-type: none"> <li>1) Connect the oscilloscope to TP24.</li> <li>2) Set the SHARPNESS VR on the front panel to the center position.</li> <li>3) Shortcircuit between the emitter and the collector of Q17 on the VIDEO board with a shorting wire, and take note of the 2 MHz signal level at that time.</li> <li>4) Remove the shorting wire, and adjust R42 so that the 2 MHz level is equalized to the level noted in the above step 3).</li> </ol>

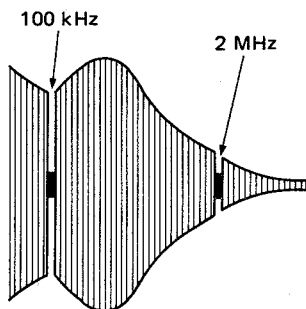


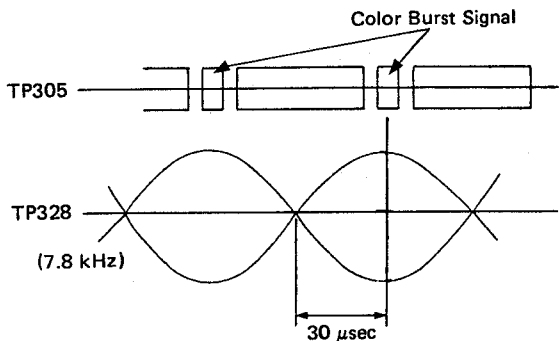
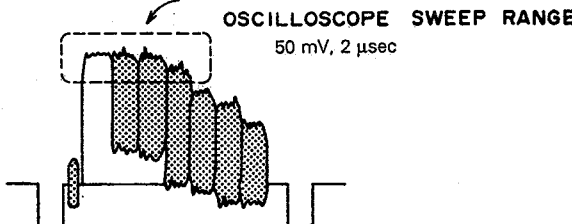


No.	Item	Check Point	Adjustment Parts	Signal	Mode	Check and Adjustment
17	2H delayed Y level	Y-OUT (75 $\Omega$ terminated) or TP110 [0] [3]	R489 [0] [3]	Color bar	S-VHS SP (3H) REC/PB ↓ STILL	1) Connect the oscilloscope's probe to the Y-OUT with 75 $\Omega$ terminator. 2) Record the color bar signal and play it back. Then, set for the Still mode. 3) Adjust R489 to remove vertical fluctuation of the waveform.
18	2H delayed C level	C-OUT (75 $\Omega$ terminated) or TP310 [0] [3]	R405 [0] [3]	Color bar	S-VHS SP (3H) REC/PB ↓ STILL	1) Connect the oscilloscope's probe to the C-OUT with 75 $\Omega$ terminator. 2) Record the color bar signal and play it back. Then, set for the Still mode. 3) Adjust R405 to remove vertical fluctuation of the waveform.
19	S-VHS SP mode Video frequency response	Y-OUT (75 $\Omega$ terminated) or TP110 [0] [3]	R108 [4] [3]	MBVE-3H	S-VHS SP (3H) PB	1) Connect the oscilloscope's probes to Y-OUT and TP7 (D. FF for external trigger) of the D/C SERVO board. 2) Confirm the SHARPNESS VR on the front panel being set to the center position. 3) Play back the MBVE-3H alignment tape. 4) When the 100 kHz level of the higher level channel is set for 5 scale divisions on the oscilloscope screen, adjust R108 so that the 3.0 MHz level of the same channel is for 4.2 scale divisions ( $-1.5$ dB). At that time, confirm that level difference between channels is within 2 dB at 4 MHz.
		Y-IN		B/W sweep	S-VHS SP (3H) REC ↓ PB	5) Record the B/W sweep signal and play it back. When the 100 kHz level of the both channels is set for 5 scale divisions respectively, confirm that the 3.0 MHz level is for 3.3–5.3 scale divisions ( $-1.5 \pm 2.0$ dB). <b>Note:</b> Measure the frequency response by the center of the fine noise outside noise that has clear contour and located on the 3 MHz marker.



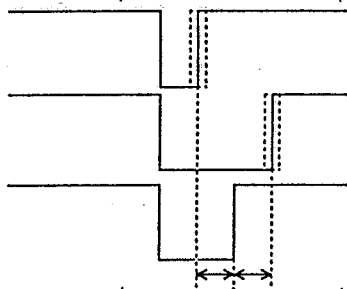
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Check and Adjustment
20	S-VHS LP mode Video frequency response	Y-OUT (75 $\Omega$ terminated) or TP110 0 3	R107 4 3	B/W sweep	S-VHS LP (3H) REC ↓ PB	<ol style="list-style-type: none"> <li>1) Connect the oscilloscope's probes to Y-OUT and TP7 (D. FF for external trigger) of the D/C SERVO board.</li> <li>2) Record the B/W sweep signal and play it back.</li> <li>3) Confirm the SHARPNESS VR on the front panel being set to the center position.</li> <li>4) When the 100 kHz level of the higher level channel is set for 5 scale divisions on the oscilloscope screen, adjust R107 so that the 3.0 MHz level of the same channel is for 3.2 scale divisions (-4 dB).</li> </ol> <p>At that time, confirm that level difference between channels is within 2 dB.</p> <p><i>Note: Measure the frequency response by the center of the fine noise outside noise that has clear contour and located on the 3 MHz marker.</i></p>
21	VHS SP mode Video frequency response	Y-OUT (75 $\Omega$ terminated) or TP110 0 3	R130 4 3	MBVE-3	VHS SP (3H) PB	<ol style="list-style-type: none"> <li>1) Connect the oscilloscope's probes to Y-OUT and TP7 (D. FF for external trigger) of the D/C SERVO board.</li> <li>2) Confirm the SHARPNESS VR on the front panel being set to the center position.</li> <li>3) Play back the MBVE-3 alignment tape.</li> <li>4) When the 100 kHz level of the higher level channel is set for 5 scale divisions on the oscilloscope screen, adjust R130 so that the 2.0 MHz level of the same channel is for 4.5 scale divisions (-1 dB).</li> </ol> <p>At that time, confirm that level difference between channels is within 2 dB.</p>
		Y-IN	—	B/W sweep	VHS SP (3H) REC ↓ PB	<ol style="list-style-type: none"> <li>5) Record the B/W sweep signal and play it back.</li> </ol> <p>When the 100 kHz level of the both channels is set for 5 scale divisions respectively, confirm that the 2.0 MHz level is for 3.5–5.6 scale divisions (-1.0 <math>\pm</math> 2.0 dB).</p> <p><i>Note: Measure the frequency response by the center of the fine noise outside noise that has clear contour and located on the 2MHz marker.</i></p>




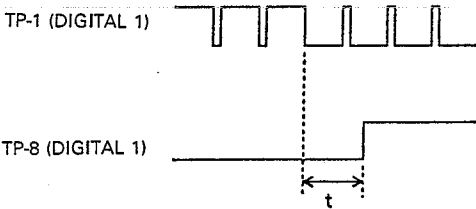











No.	Item	Check Point	Adjustment Parts	Signal	Mode	Check and Adjustment
22	VHS LP mode Video frequency response	Y-OUT (75 $\Omega$ terminated) or TP110 ① ③	R131 ④ ③	B/W sweep	VHS LP (6H) REC ↓ PB	<ol style="list-style-type: none"> <li>1) Connect the oscilloscope's probes to Y-OUT and TP7 (D. FF for external trigger) of the D/C SERVO board.</li> <li>2) Record the B/W sweep signal and play it back.</li> <li>3) Confirm the SHARPNESS VR on the front panel being set to the center position.</li> <li>4) When the 100 kHz level of the higher level channel is set for 5 scale divisions on the oscilloscope screen, adjust R131 so that the 2.0 MHz level of the same channel is for 3.5 scale divisions (-3 dB).</li> </ol> <p>At that time, confirm that level difference between channels is within 2 dB.</p> <p><b>Note:</b> Measure the frequency response by the center of the fine noise outside noise that has clear contour and located on the 2 MHz marker.</p>
23	APC error phase	TP305 ① ③ TP328 ① ③	T301 ① ③	Color bar	S-VHS SP (3H) REC ↓ PB	<ol style="list-style-type: none"> <li>1) Connect one channel of a dual trace oscilloscope to TP305 and the other channel to TP328. Trigger the oscilloscope externally (- slope) with the signal from TP12 (H. SYNC).</li> <li>2) Set the oscilloscope for ALT mode.</li> <li>3) Adjust T301 to position the zero-cross 30 <math>\mu</math>sec <math>\pm</math> 3 <math>\mu</math>sec from the center of the burst signal as shown in the figure.</li> </ol>
						
24	0.5H delayed video level	VIDEO OUT (75 $\Omega$ terminated)	R9 (IC6 Module)	Color bar	S-VHS LP (6H) REC ↓ PB ↓ STILL	<ol style="list-style-type: none"> <li>1) Connect the oscilloscope's probe to the VIDEO OUT with 75 <math>\Omega</math> terminator.</li> <li>2) Set the TRACKING control of the front panel to the preset position.</li> <li>3) Record the color bar signal and play it back. Then set for the Still mode.</li> <li>4) Adjust R9 (inside IC6 module) not to double the waveform.</li> </ol> <p>(Adjust the waveform so that it does not double and has smooth outline. Particularly for the waveform inside the dotted line, set the oscilloscope to 50 mV, 2 <math>\mu</math>sec for measurement.)</p>
		<p>Adjust to eliminate vertical fluctuation of the waveform.</p> 				

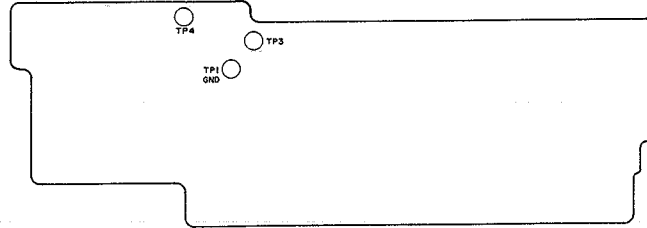
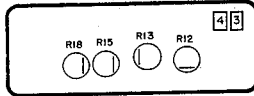
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Check and Adjustment
25	0.25H delayed video level	Y OUT (75 $\Omega$ terminated) or TP110 0 3	R163 0 3	Pulse & Bar	S-VHS LP (6H) REC ↓ PB  EE	1) Connect the oscilloscope's probe to the Y OUT with 75 $\Omega$ terminator. 2) Adjust R163 for maximum output level. 3) Adjust R27 to equalize the 0.25H delayed signal level to signal level of the Y OUT in the EE mode. <i>Note: If flicker is observed in the Y signal, again check the adjustment of the previous item, No. 24 "0.5H delayed video level".</i>
26	VXO check	TP306	—	Color bar	EE	1) Connect a frequency counter to TP306. 2) Confirm that the frequency counter reads 4.433619 MHz $\pm$ 60 Hz.
27	REC pilot burst check	TP321 0 3	—	Color bar	S-VHS SP (3H) EE	1) Connect the oscilloscope and a vectorscope with TP321. 2) Confirm that pilot burst level is 100 <sup>+20</sup> <sub>-10</sub> % to the burst level. 3) Confirm that the pilot burst phase is in a range of $+270^\circ \pm 10^\circ$ when the burst phase is correctly set for the normal position on the vectorscope.
28	Digital input level	TP1 (CN20 pin 1)	R463 0 3	Color bar	S-VHS SP (3H) EE	1) Connect the oscilloscope's probe to TP1 (CN20 pin 1). 2) Adjust R463 so that the level is 2.0 Vp-p.
29	2nd sync. separation	TP9 6 2	R34 6 2	Color bar	VHS REC ↓ PB	1) Connect the oscilloscope's probe to TP9. 2) Adjust R34 so that the center of the pulse width has neither noise nor vertical fluctuation.

TP-9 (DIGITAL 1)



No.	Item	Check Point	Adjustment Parts	Signal	Mode	Check and Adjustment
30	JOB-VD	TP1  TP8 	R65 	Color bar	S-VHS SP REC  REC ↓ PB	1) Connect the oscilloscope's probes to TP1 and TP8. Trigger the oscilloscope externally with the signal from TP7 (D/C SERVO board). 2) Adjust R65 so that "t" becomes 46 $\mu$ sec. 3) Record the color bar signal and play it back to confirm that "t" is 46 $\mu$ sec in playback.
						
31	Y output level	Y OUT (75 $\Omega$ terminated)	R206  R211 	Color bar	S-VHS SP (3H) REC ↓ PB	1) Press the DIGITAL switch repeatedly while adjusting R206 and R211 so that there is no level difference at the Y OUT if the DIGITAL LED is turned on or off.
		VIDEO OUT (75 $\Omega$ terminated)	R226 	Color bar	S-VHS SP (3H) REC ↓ PB	2) Press the DIGITAL switch repeatedly while adjusting R226 so that there is no level difference at the VIDEO OUT if the DIGITAL LED is turned on or off.
32	C output level	VIDEO OUT (75 $\Omega$ terminated)	R240  R253  R257  R236  R238  R120 	Color bar	S-VHS SP (3H) REC ↓ PB	1) Press the DIGITAL switch repeatedly while adjusting R240 and R253 so that there is no difference in the carrier leak at the VIDEO OUT if the DIGITAL LED is turned on or off. 2) In the same manner, adjust R257 to remove difference in the burst level. 3) In the same manner, adjust R257 to remove difference in the color level. 4) In the same manner, adjust R120 to remove difference in the color phase.

### 3.8 PRE/REC CIRCUIT



No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
1	Head resonance & Q (quality factor)	TP4 4 3 (SP mode) TP3 4 3 (EP mode)	R18 4 3 R15 4 3 R13 4 3 R12 4 3 C64, C62 4 3 C64, C63 4 3	RF sweep	EE (SP)	<p><b>Note:</b></p> <p>(1) Check and adjustment of this item must be performed after the upper drum is replaced.</p> <p>(2) For grounding the oscilloscope, connect the probe to TP GND of the PRE/REC board.</p> <p>(3) For adjustment of head resonance, separate the upper drum from the PRE/REC board as apart as possible since the PRE/REC board has a great influence on the air core coil.</p> <p>(4) Carefully attach and detach the head resonance adjusting coil not to damage heads.</p> <p>(5) Waveform in the oscilloscope screen may sometimes be small. In such a case, repeat turning on and off the power switch or repeat switching modes between play and stop in order to change channels since CH-1 and CH-2 are replaced with each other by the timing of the DRUM FF signal.</p> <p>-----</p> <p>1) Connect the oscilloscope to TP4 of the PRE/REC board while grounding it to TP GND1.</p> <p>2) Set the head resonance adjusting coil to the SP CH-1 of the upper drum and connect it with the sweep signal generator.</p> <p>3) Trigger the oscilloscope externally with the signal from the TRIGGER OUT of the sweeper (VD mode).</p> <p>4) Adjust R18, C64 to shape the waveform of the SP CH-1 as specified.</p> <p>5) Set the head resonance adjusting coil to the SP CH-2 in the same manner as the step 2) and 3).</p> <p>6) Adjust R15, C62 to shape the waveform of the SP CH-2 as specified.</p> <p>7) Set the REC MODE switch to the 3X EP position.</p> <p>Change the probe connection from TP4 to TP3 (for 3X EP mode), and adjust R13, C61 for the EP CH-1 and R12, C63 for the EP CH-2 respectively.</p> <p><b>Note:</b>In the quality factor adjustment in the condition that <math>a : b = 3 : 6</math>, if there occurs inversion, etc., change the condition so that <math>a : b = 3 : 5</math> and do the adjustment again.</p>

Mode & CH	Direction	Test point	VR (Q)	Fo	DRUM FF TP7 0 5
SP CH-1	Hole A side	TP4	R18	C64	L
SP CH-2	Hole B side	TP4	R15	C62	H
EP CH-1	Hole B side	TP3	R13	C61	H
EP CH-2	Hole A side	TP3	R12	C63	L

8.0 MHz (7.1 - 8.0 MHz)

1 MHz

SP  $a : b = 3 : 6$  (EP  $a : b = 3 : 6$ )

COAXIAL cable less than 1 m

PTU94004A (ADJUST Coil)

DRUM ASS'Y of Video cassette

to Sweep Generator with  $\oplus$   $\ominus$

approx 640 mVp-p signal

EP CH-2 SP CH-1

Hole A

Hole B

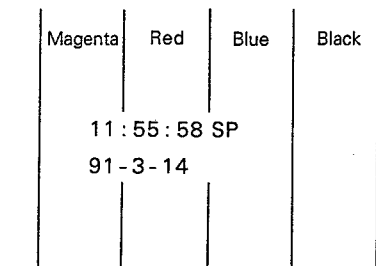
SP CH-2 EP CH-1

PRE/REC PWB

C63 C61 C64 C62

EE (EP)

### 3.9 O.S.D./BATT CIRCUIT

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
1	On Screen position	VIDEO OUT ↓ TV monitor	C6 7 4	Color bar	EE	<ol style="list-style-type: none"> <li>1) Connect the TV monitor to the VIDEO OUT terminal.</li> <li>2) Set the ON SCREEN switch on the front panel to ON.</li> <li>3) Move the on screen display to the rightmost position in the screen while pressing the ON SCREEN POSITION switch on the front panel.</li> <li>4) Adjust C6 to position colon between the hour and minute indications on the boundary line between red and magenta of the color bars while observing the TV monitor.</li> <li>5) While turning the ON SCREEN BRIGHTNESS control on the front panel, confirm that the brightness of the display changes as the VR is turned.</li> </ol> <p>After the confirmation, make sure to reset the BRIGHTNESS VR to the center position.</p>
						
2	TDG clock	TP4 7 9	C12 7 9	—	EE	<ol style="list-style-type: none"> <li>1) Disconnect the plug of the power cord from the AC outlet.</li> <li>2) Supply 5.3 V DC to the plus (+) terminal and the minus (−) terminal of the battery case. (+ : on the upper left, − : on the lower right)</li> <li>3) Unhook the front panel by three points to open it.</li> <li>4) Connect the frequency counter to TP4.</li> <li>5) Shortcircuit between TP1 and GND.</li> <li>6) Shortcircuit TP2 to GND once.</li> <li>7) Adjust C12 so that the frequency counter reads <math>2048.000 \pm 0.001</math> Hz.</li> <li>8) After the adjustment, remove the shorting wires and disconnect the external power supply unit.</li> </ol> <p><b>Note:</b>The TIMER board 7 9 is installed between the front panel assembly and the O.S.D./BATT board.</p>





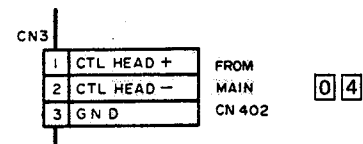
## SECTION 4 DIAGRAMS AND CIRCUIT BOARDS

### ■ FOREWORD

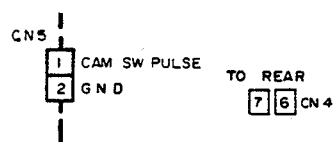
#### 1. Expression of connector

Connector is expressed in the two ways.

1) The following illustrates "CN3 pins 1, 2 and 3".



2) The following illustrates "CN5 pins 1 and 2".



#### 2. Expression of wiring

As the following circuit diagram is divided to print on some sheets, such an indication as the following is found in the case the wiring extends over two or more divided sections.

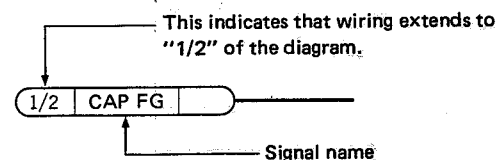
1) Circuit diagram divided into two or more sections:

Board No.	Board Name	Circuit Name
03	VIDEO	Y Section COLOR Section
04	AUDIO	AUDIO Section
06	TIME LAPSE SERVO	1/2 Section 2/2 Section
07	MECHACON	2/1 Section 2/2 Section
43	PRE/REC	1/2 Section 2/2 Section

2) Indication of wiring which extends to another section:

(Example)

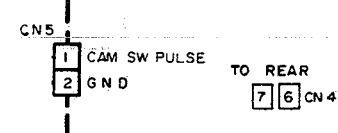
On the "2/2" diagram of MECHACON board, such an indication as the following is found on the CAP FG signal line.



In the above case, the end of the wiring is connected to the "1/2-CAP FG" on the 1st section of the diagram.

#### 3. Wiring of connector

(Example)



In the above example, CN5 is connected with CN4 on 7 6 REAR board.

#### 4. Signal flow on the diagram

The following arrow marks indicate the specified signal paths respectively.

➡ : RECORDING or EE SIGNAL PATH

➡ : PLAY BACK SIGNAL PATH

➡ : REC/PLAY SIGNAL PATH


#### 5. Measurement of voltage and waveform

**Voltage** : Measured by digital voltmeter in REC mode. Where voltages differ between recording and playback, the voltage during playback is shown in parentheses.

**Waveform** : Waveforms (VIDEO System) are measured with a color bar during recording and playback. Waveforms (AUDIO System) are measured with 1 kHz (-8 dBs) during recording and palyback.

#### 6. Unit of value

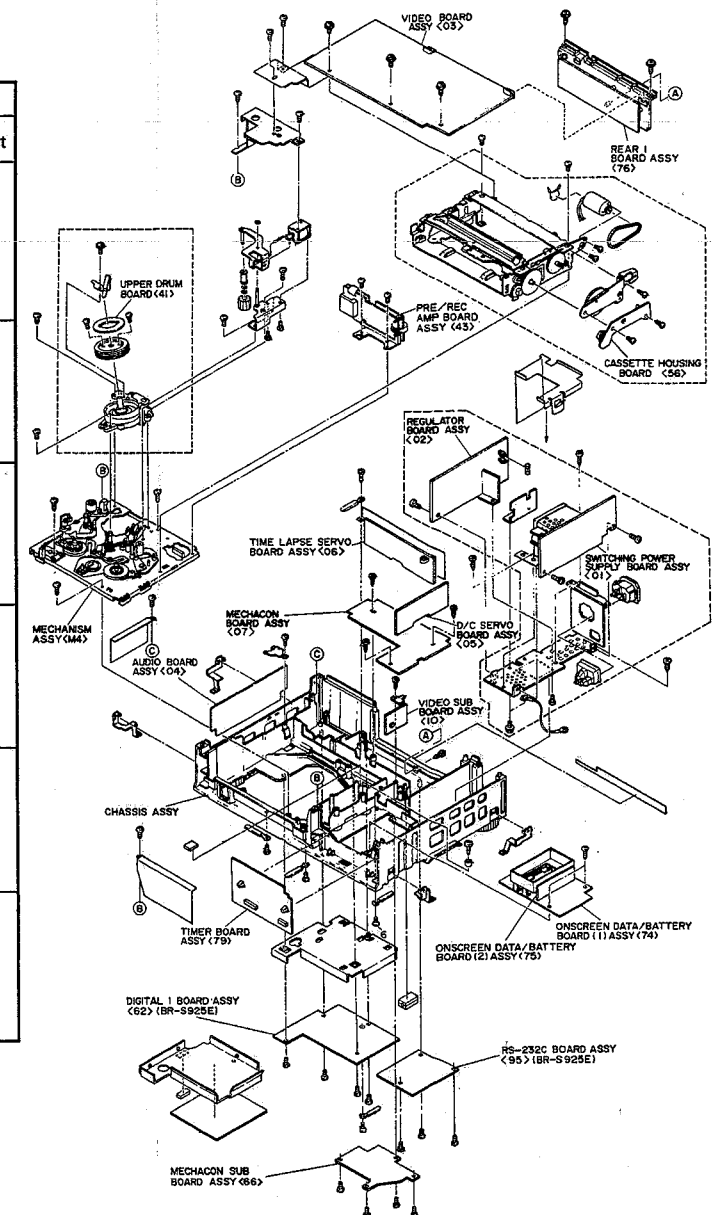
Unless otherwise specified:

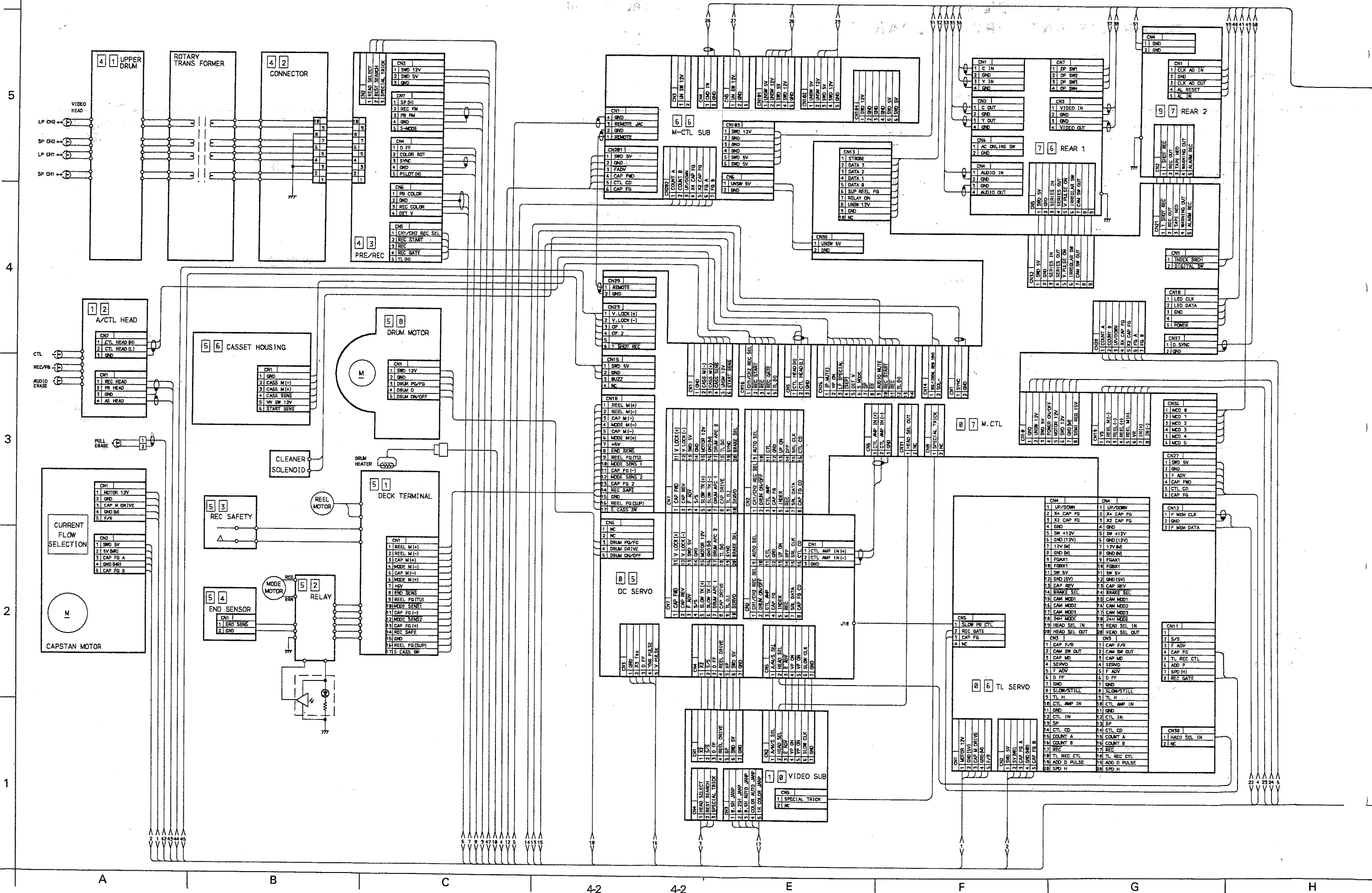
- Resistance is in  $\Omega$  (1/6 W)
- Capacitance in  $\mu F$ .
- Inductance in  $\mu H$ .
- Diodes are 1SS133.
- Screened parts (in ) are important for safety assurance. When replacing them, use specified parts.

### 4.1 CIRCUIT BOARD LOCATIONS

• Index to board by kind od diagrams

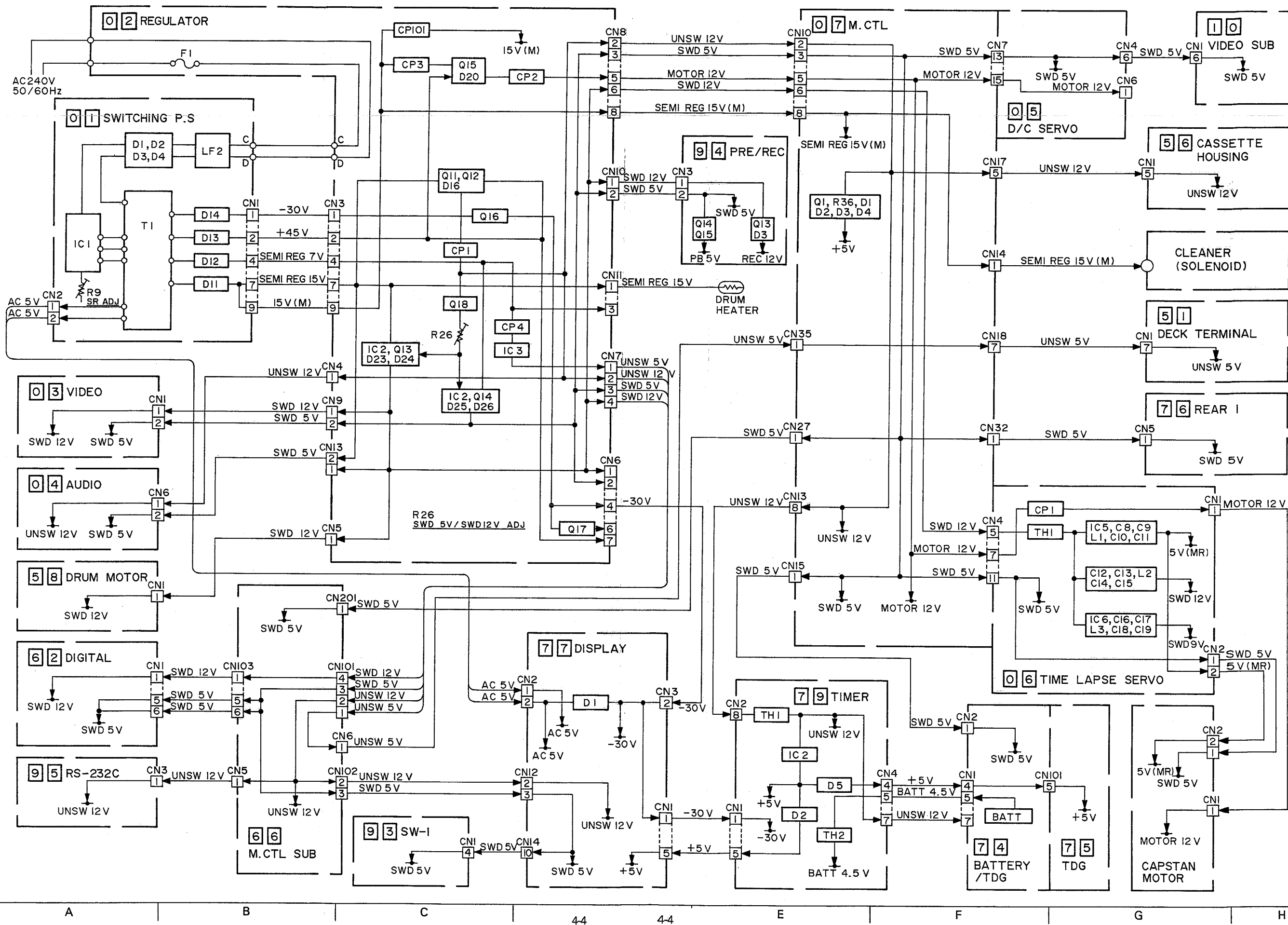
Board No.	Board Name	Page of Diagram			
		Block diagram	Schematic diagram	Circuit board	Part list
01	SWITCHING P.S	4-4	4-12	4-13	6-4
03	VIDEO				
	<VIDEO Y SECTION>	4-5	4-14	4-16	6-5
	<VIDEO C SECTION>	4-5	4-15	4-16	6-5
04	AUDIO	4-8	4-17	4-17	6-14
05	D/C SERVO	4-7	4-18	4-19	6-15
06	TIME LAPSE SERVO	4-6	4-20,4-21	4-22	6-16
07	MECHACON	4-9	4-23,4-24	4-25	6-18
10	VIDEO SUB	—	4-28	4-28	6-20
12	A/C HEAD	—	—	—	6-21
41	UPPER DRUM	—	—	—	6-21
43	VIDEO PRE/REC	4-10	4-29,4-30	4-30	6-21
51	DECK TERMINAL	4-9	4-51	4-51	6-23
52	RELAY	—	—	—	6-23
53	REC SAFETY	—	—	—	6-23
54	END SENSOR	—	—	—	6-23
56	CASSETTE HOUSING	—	—	—	6-24
61	D-SUB C. (BR-S925E only)	—	—	—	6-24
62	DIGITAL-1 (BR-S925E only)	4-11	4-31,32,33,34	4-35	6-24
66	MECHACON SUB	—	4-26	4-27	6-28
74	ON SCREEN DATA/BATTERY (1)	—	4-36	4-37	6-29
75	ON SCREEN DATA/BATTERY (2)	—	4-36	4-37	6-29
76	REAR-1	—	4-38	4-38	6-30
77	DISPLAY	—	4-39,4-40	4-41	6-30
79	TIMER	—	4-42	4-43	6-31
92	OPERATION	—	4-44	4-45	6-32
93	SWITCH	—	4-46	4-47	6-33
95	RS-232C (BR-S925E only)	—	4-48	4-49	6-33
97	REAR-2 (BR-S925E only)	—	4-50	4-50	6-34
97	REAR-2 (BR-S920E only)	—	4-50	4-50	6-34

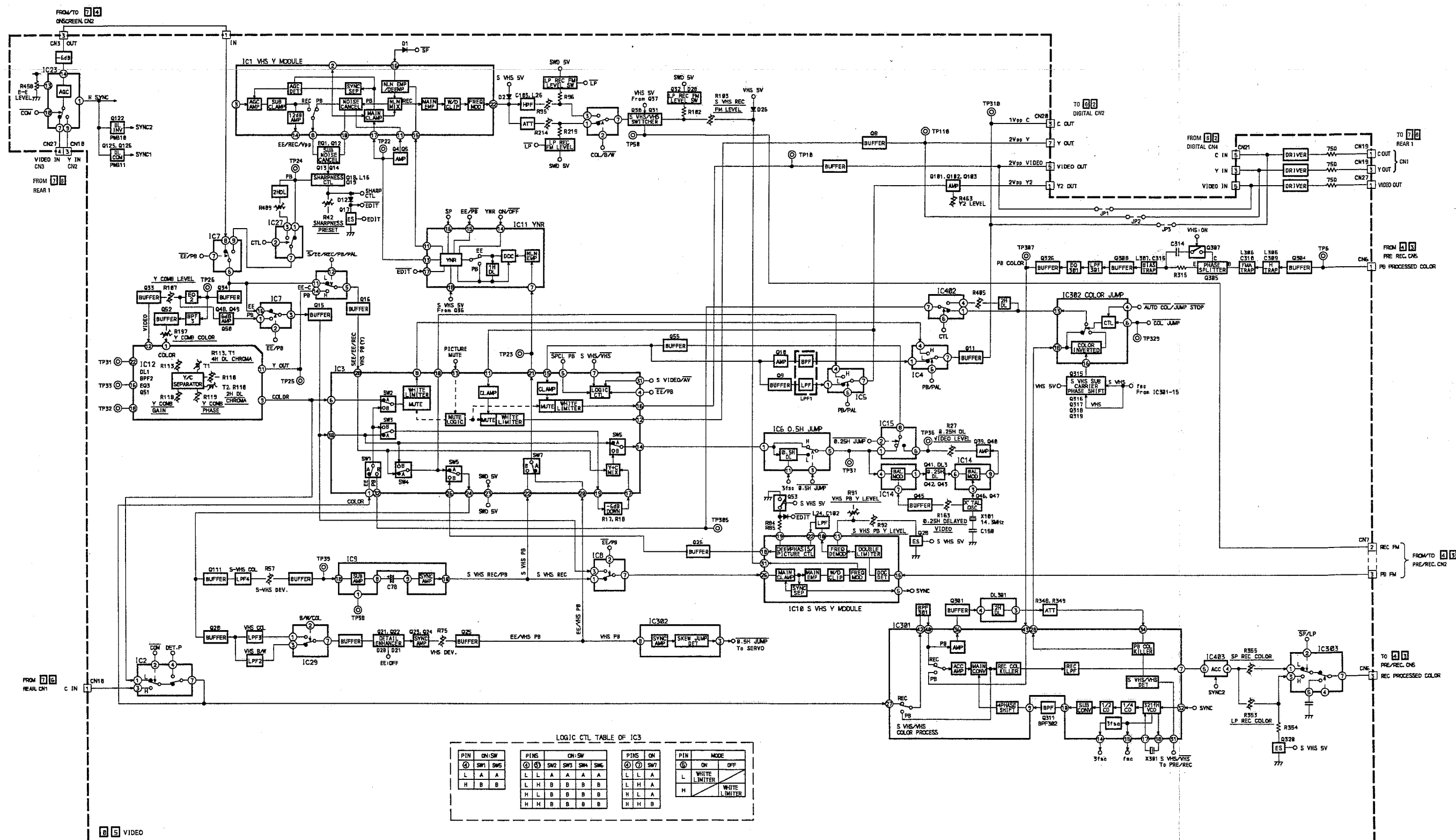




## 4-3





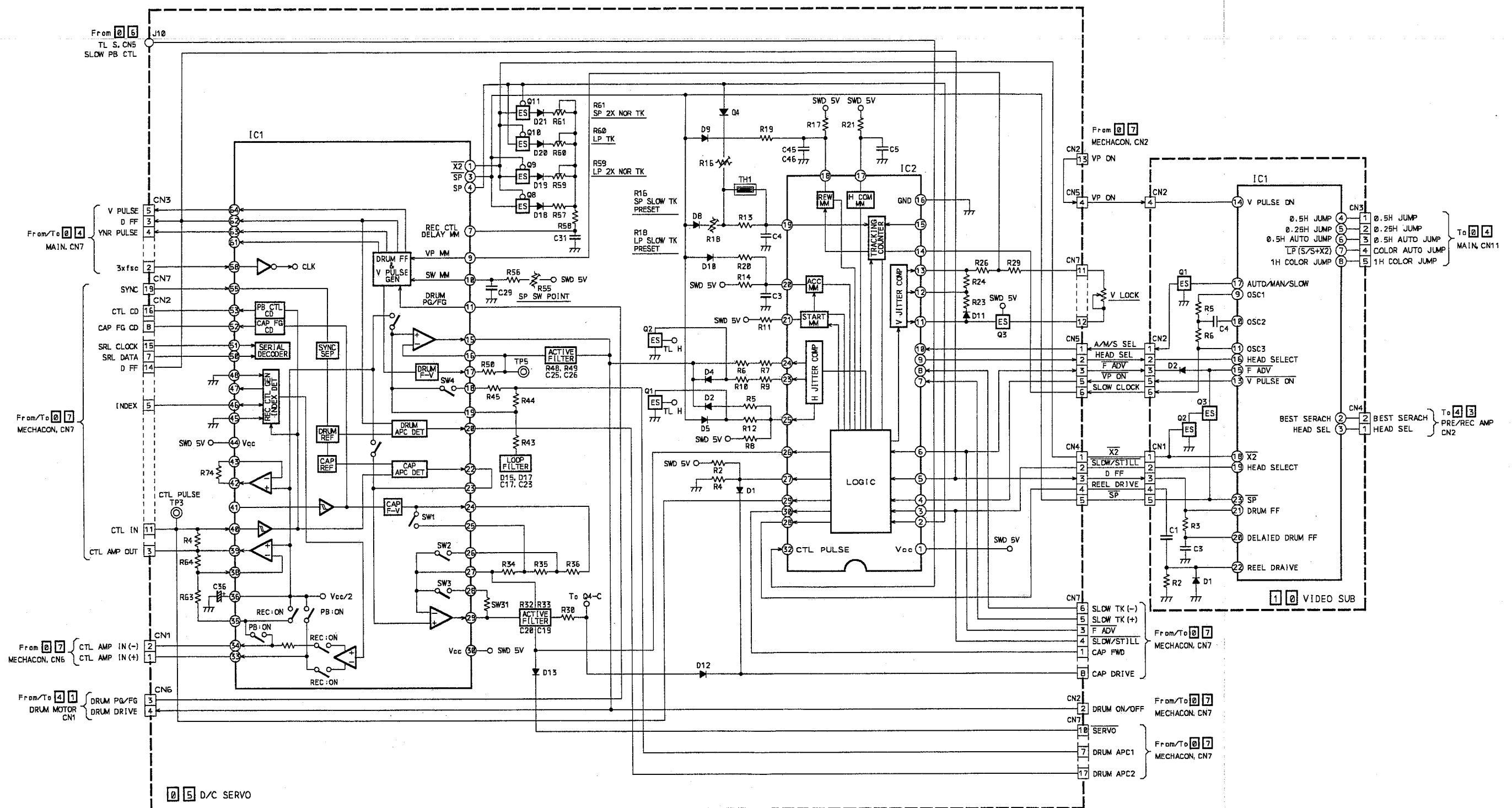


## 6



A	B	C	4-6	4-6	E	F	G
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# SERVO BLOCK DIAGRAM (2/2)

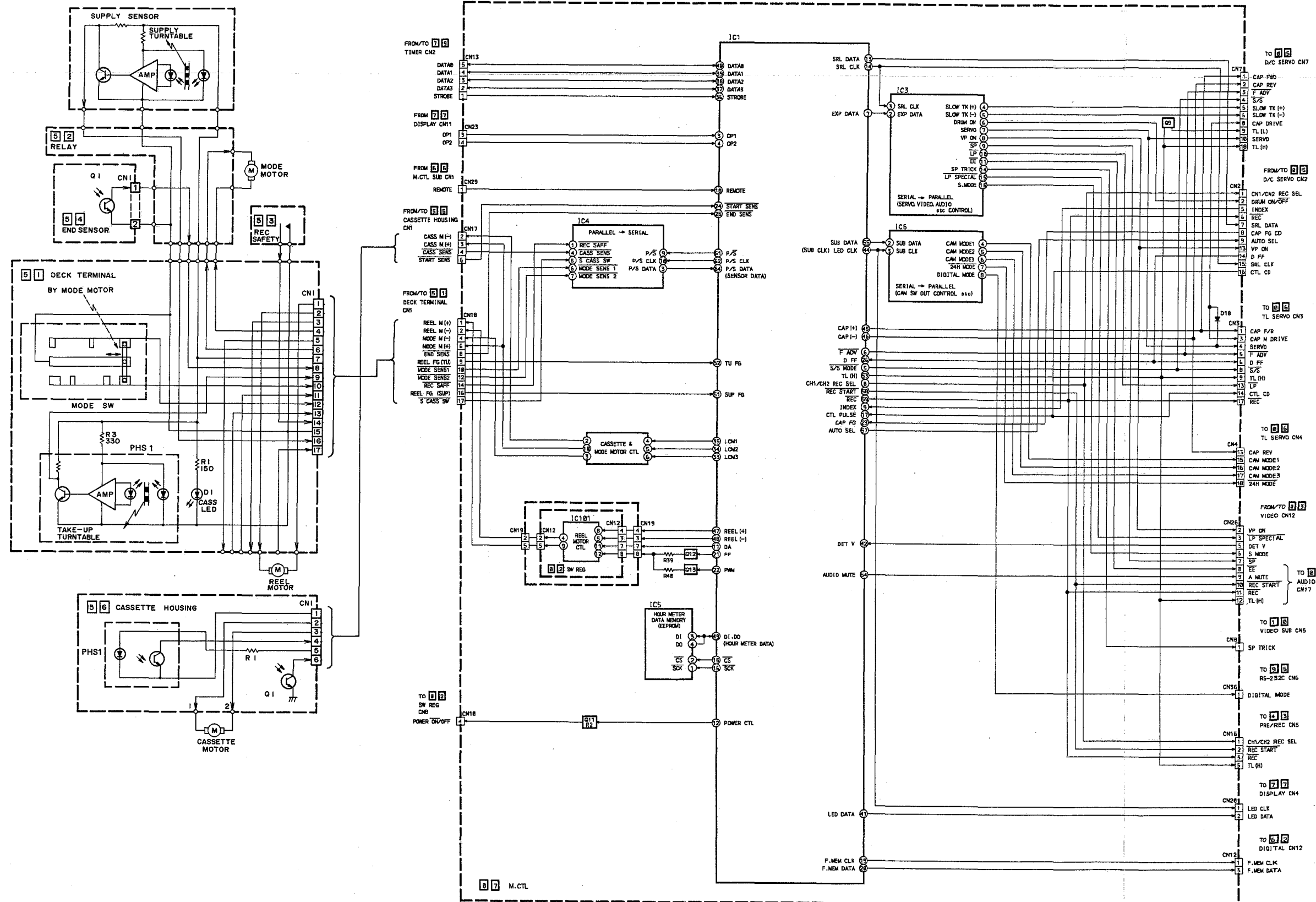


## 6

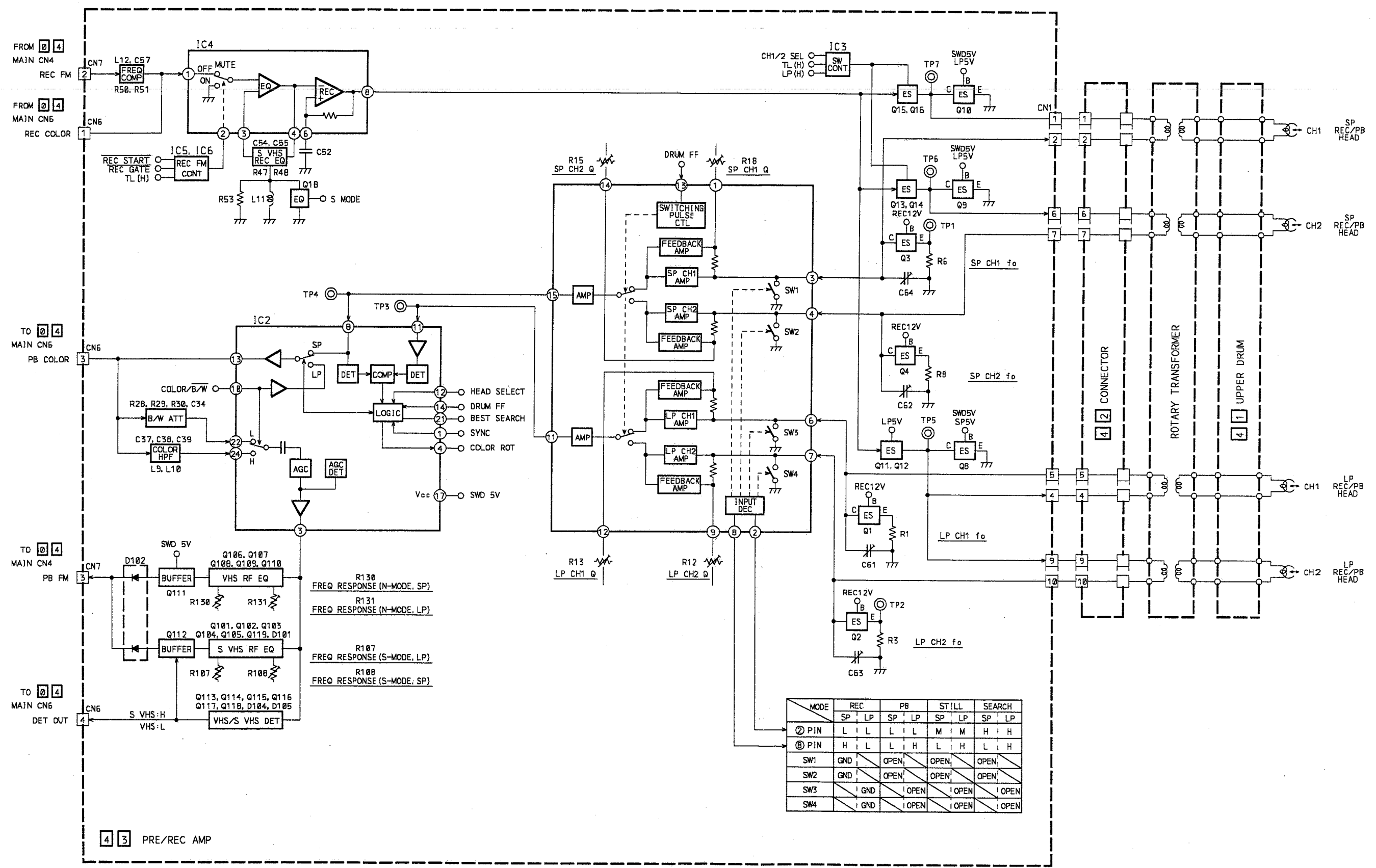




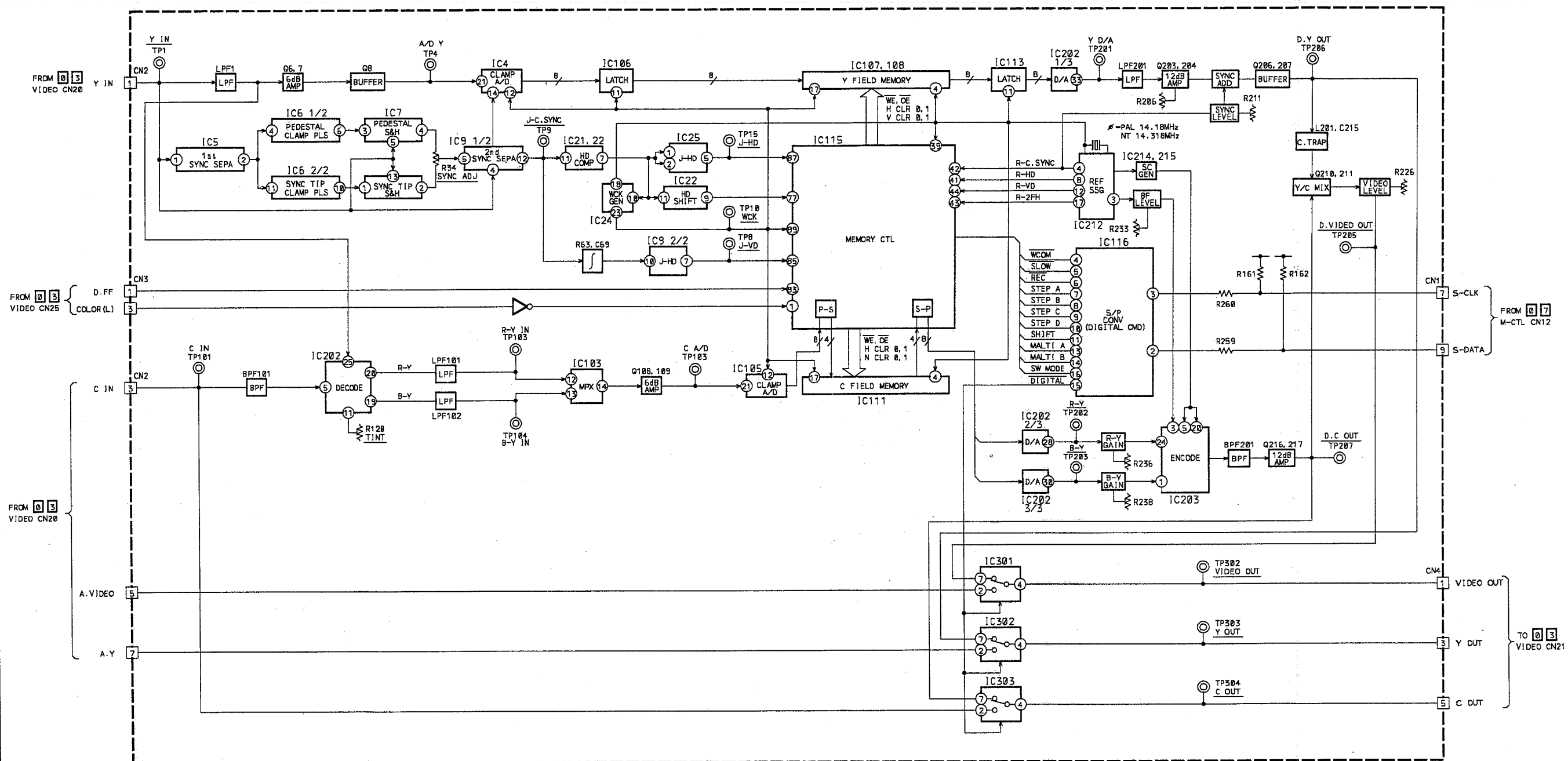
# 4.7 MECHACON BLOCK DIAGRAM

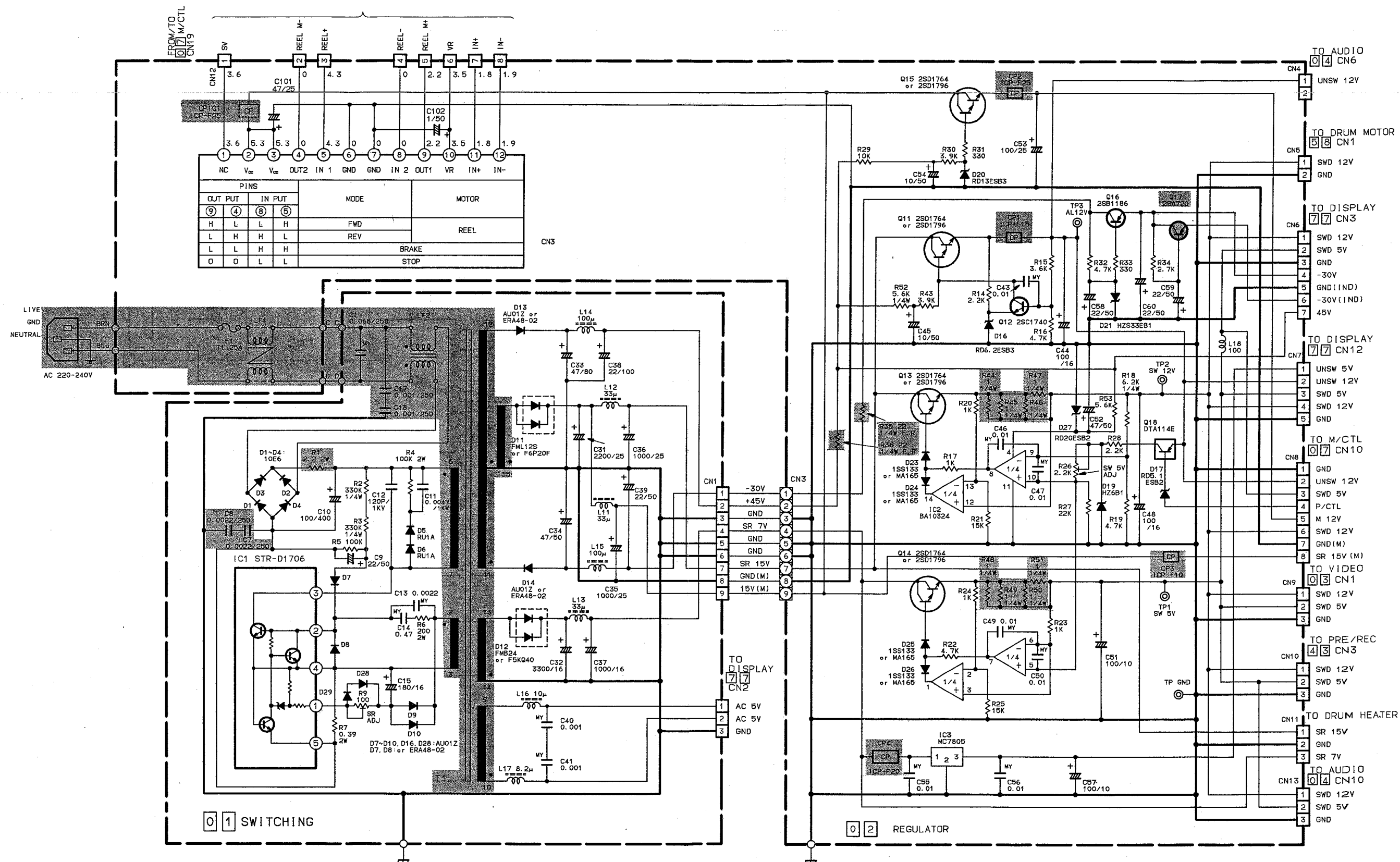


4.8 VIDEO PRE/REC BLOCK DIAGRAM



# 4.9 DIGITAL BLOCK DIAGRAM

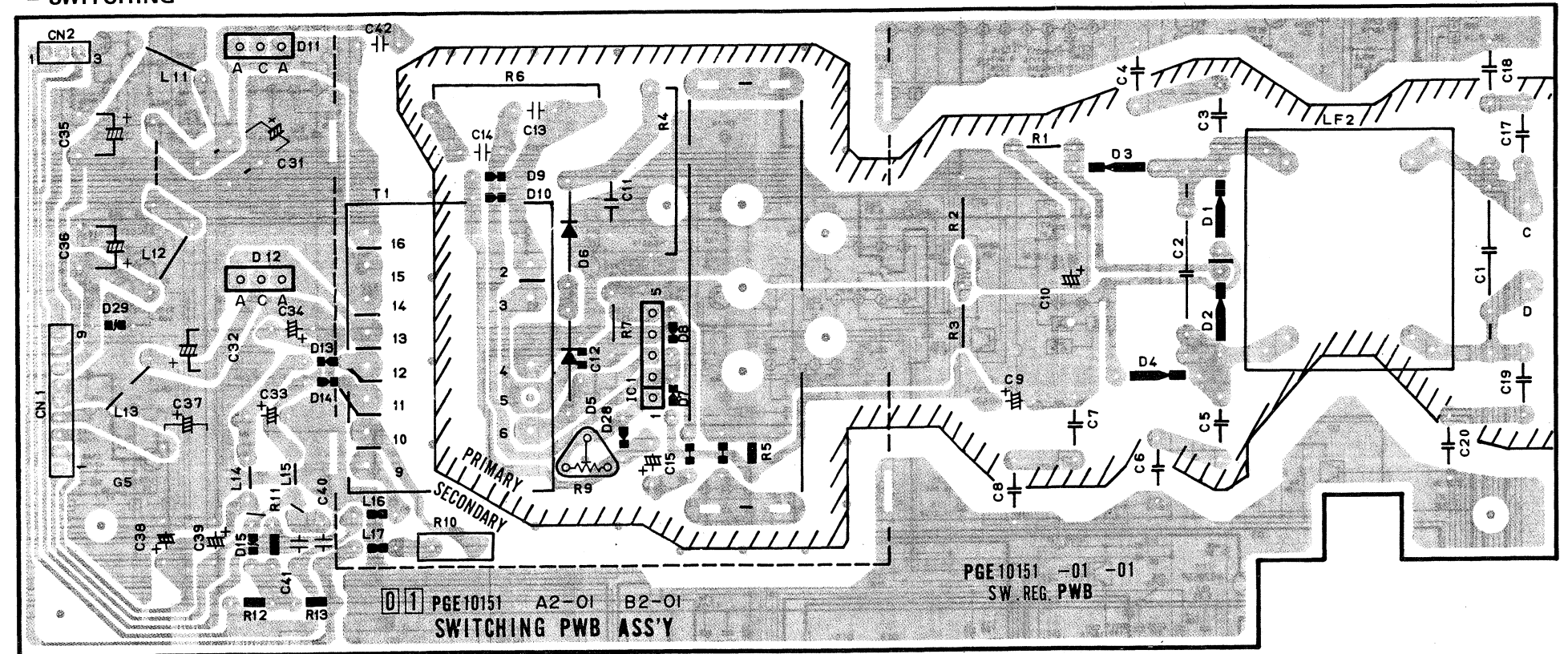




	BR-5925E	BR-5920E
D29	O	X

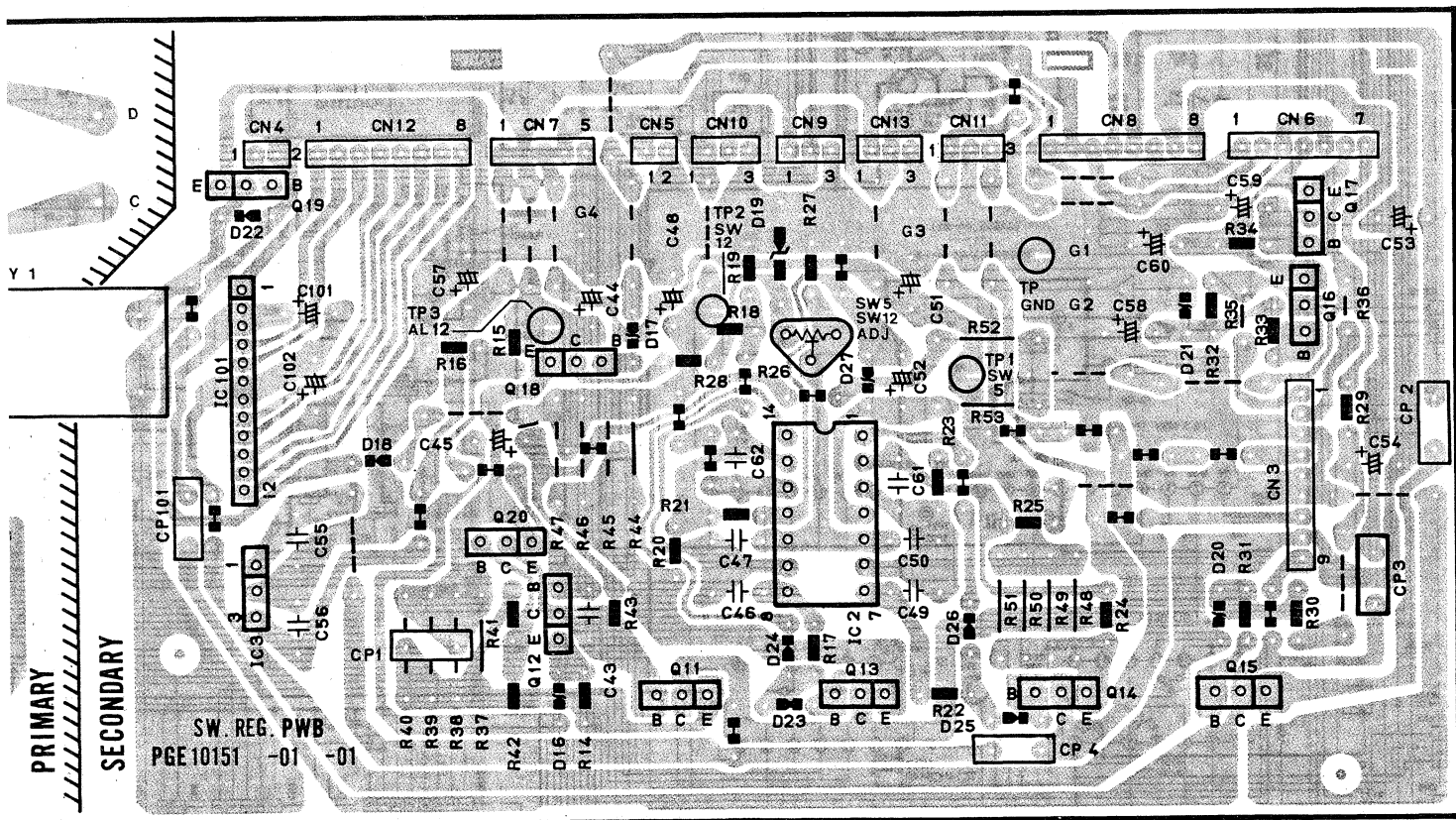
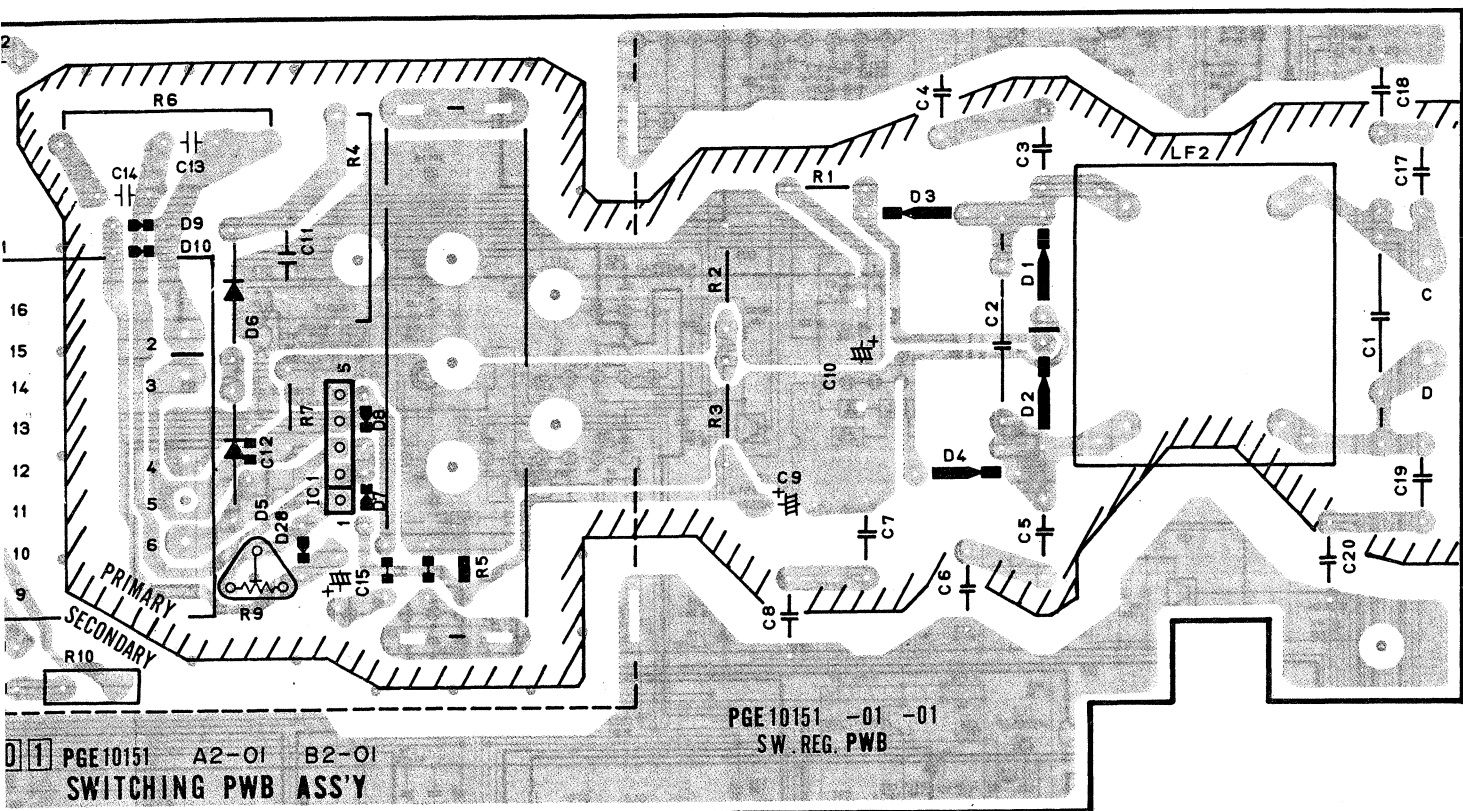
SYMBOL No.		REC	PB	SYMBOL No.		REC	PB		
INTEGRATED CIRCUIT				CN5	1 2	12.3 0.0	12.3 0.0		
IC1	1	-136.0	-136.0	CN6	1	12.3	12.3		
	2	-130.7	-130.7		2	5.3	5.3		
	3	-131.3	-131.3		3	0.0	0.0		
	4	-131.0	-131.0		4	-30.7	-30.7		
	5	-131.0	-131.0		5	0.0	0.0		
IC2	1	18.3	18.3	CN7	1	5.0	5.0		
	2	18.3	18.3		2	12.4	12.4		
	3	18.3	18.3		3	5.3	5.3		
	4	18.3	18.3		4	12.3	12.3		
	5	18.3	18.3		5	0.0	0.0		
	6	11.4	11.4	CN8	1	0.0	0.0		
	7	11.4	11.4		2	12.5	12.5		
	8	11.4	11.4		3	1.2	1.2		
	9	12.5	12.5		4	12.4	12.4		
	10	11.8	11.8		5	12.0	12.0		
IC3	1	8.0	8.0	CN9	1	12.3	12.3		
	2	0.0	0.0		2	5.1	5.1		
IC101	1	3.6	3.6		CN10	1	12.3	12.3	
	2	5.3	5.3			2	0.0	0.0	
	3	5.3	5.3		CN11	1	16.1	16.1	
	4	0.0	0.0	2		0.0	0.0		
	5	4.3	4.3	CN12	1	3.6	3.6		
	6	0.0	0.0		2	0.0	0.0		
	7	0.0	0.0		3	4.3	4.3		
	8	0.0	0.0		4	0.0	0.0		
	TRANSISTOR	Q11	B	13.7	13.7	CN13	1	12.3	12.3
			C	16.2	16.2		2	5.1	5.1
			E	12.3	12.3		3	0.0	0.0
			B	7.0	7.0		CN14	1	12.3
C			13.7	13.7	2			5.1	5.1
E		6.4	6.4	3	0.0	0.0			
Q12		B	13.8	13.8	CN15	1		12.3	12.3
		C	16.1	16.1		2		5.1	5.1
		E	12.5	12.5		3	0.0	0.0	
		Q13	B	6.9		6.9	CN16	1	12.3
	C		8.0	8.0		2		5.1	5.1
E	3.4		3.4	3	0.0	0.0			
Q14	B		13.5	13.5	CN17	1		12.3	12.3
	C		16.2	16.2		2		5.1	5.1
	E	12.3	12.3	3		0.0	0.0		
	Q15	B	-30.8	30.8		CN18	1	12.3	12.3
		C	-38.0	38.0			2	5.1	5.1
E		-30.5	30.5	3	0.0		0.0		
Q16		B	-30.1	30.1	CN19		1	12.3	12.3
		C	-30.5	30.5			2	5.1	5.1
	E	-29.9	29.9	3		0.0	0.0		
	Q17	B	8.3	8.3		CN20	1	12.3	12.3
		C	12.2	12.2			2	5.1	5.1
E		12.4	12.4	3	0.0		0.0		
CONNECTOR				CN21	1		12.3	12.3	
CN1		1	-38.3		-38.3		2	5.1	5.1
	2	45.0	45.0		3	0.0	0.0		
	3	0.0	0.0		4	0.0	0.0		
	4	0.0	0.0		5	0.0	0.0		
	5	0.0	0.0	6	0.0	0.0			
CN2	1	AC5.0	AC5.0	CN22	1	12.3	12.3		
	2	AC5.0	AC5.0		2	5.1	5.1		
	3	0.0	0.0		3	0.0	0.0		
	4	0.0	0.0		4	0.0	0.0		
	5	0.0	0.0		5	0.0	0.0		

– SWITCHING –



2 PGE10151 AI-O2 BI-O1  
 REGULATOR PWB ASS'Y  
 FUSE 1  
 FUSE 2  
 RY 1  
 LIVE  
 NEUTRAL  
 PRIMARY  
 SECONDARY  
 SW. REG. PWB  
 PGE10151 -01 -01





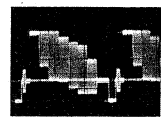
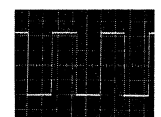
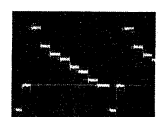
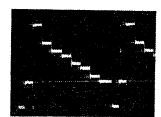
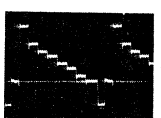
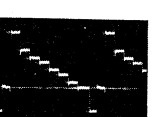
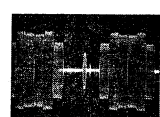
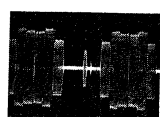
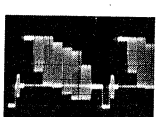
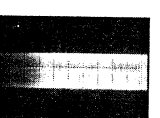
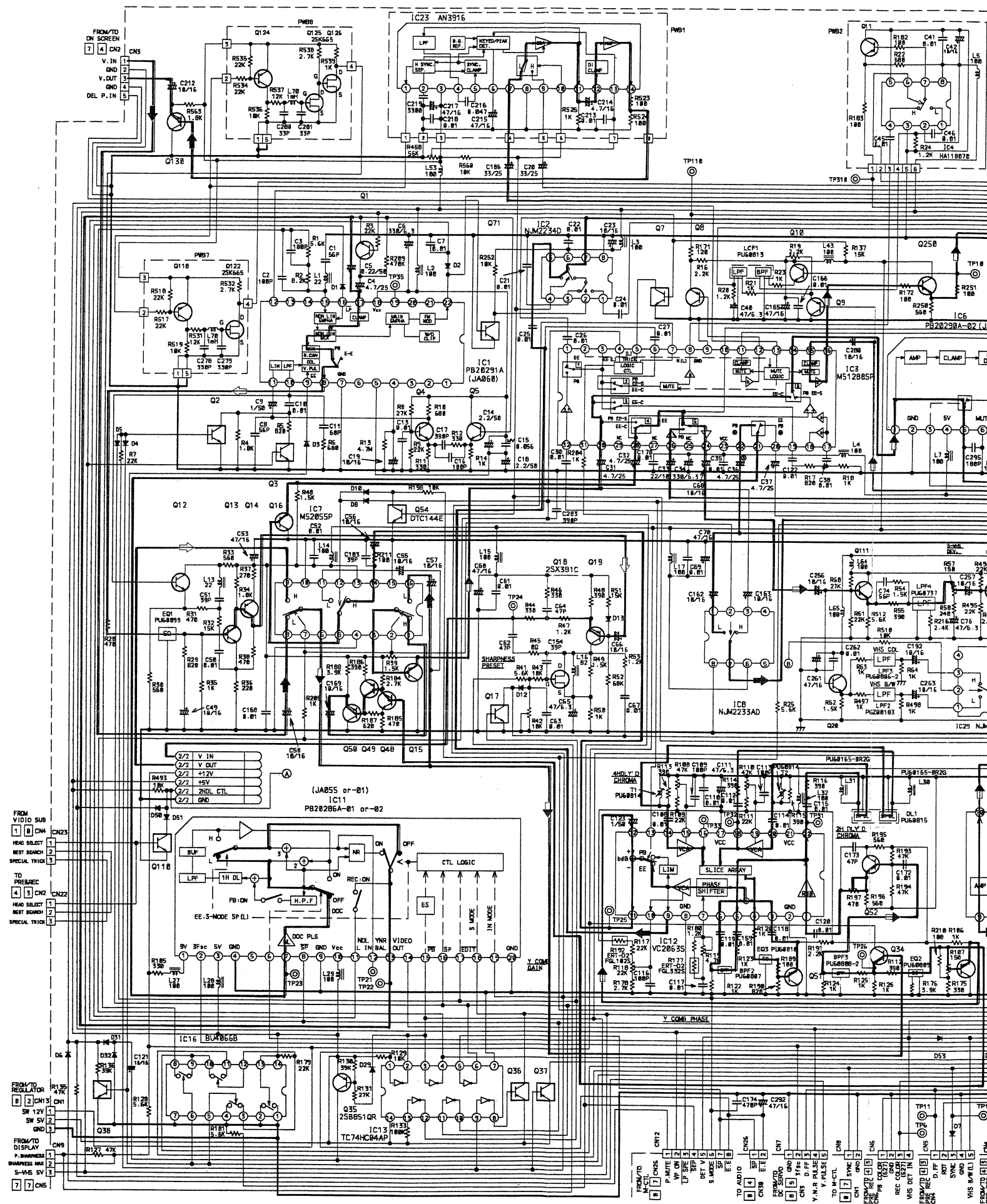
— VIDEO Voltage (1/3) —

SYMBOL No.	REC	PB	SYMBOL No.	REC	PB	SYMBOL No.	REC	PB	SYMBOL No.	REC	PB
INTEGRATED CIRCUIT			IC6	1	1	IC11	1	1	IC16	12	1
IC1	1	1	IC7	1	1	IC12	1	1	IC19	1	1
IC2	1	1	IC8	1	1	IC13	1	1	IC23	1	1
IC3	1	1	IC9	1	1	IC14	1	1	IC24	1	1
IC4	1	1	IC10	1	1	IC15	1	1	IC25	1	1
IC5	1	1	IC11	1	1	IC16	1	1	IC26	1	1
			IC12	1	1	IC17	1	1	IC27	1	1
			IC13	1	1	IC18	1	1	IC28	1	1
			IC14	1	1	IC19	1	1	IC29	1	1
			IC15	1	1	IC20	1	1	IC30	1	1
			IC16	1	1	IC21	1	1	IC301	1	1

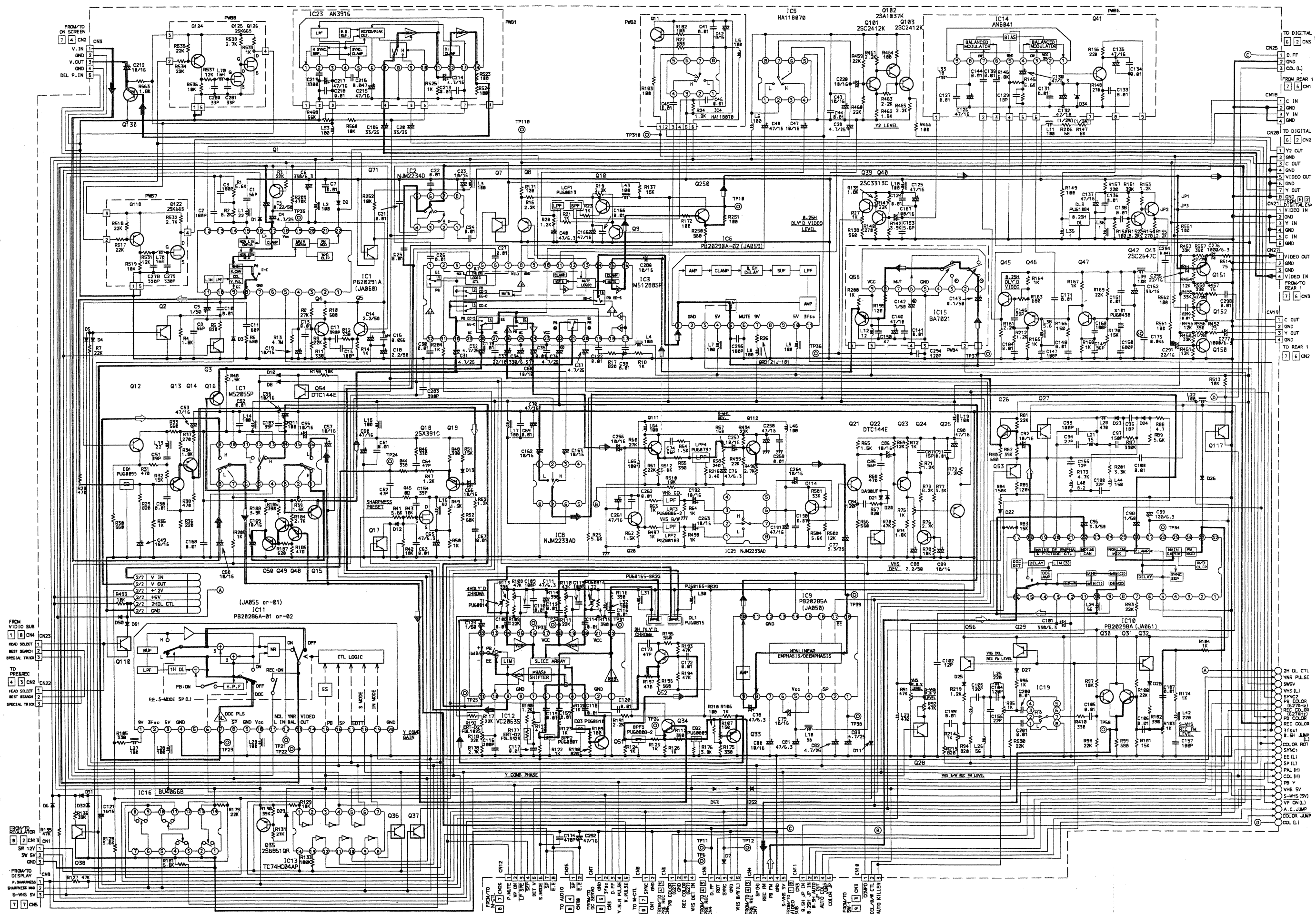
## 4.12 VIDEO SCHEMATIC DIAGRAM

- Y SECTION -

- MAIN WAVEFORMS OF VIDEO CIRCUIT -

TP10  
REC 2.0 Vp-pTP10  
PB 2.0 Vp-pTP11  
REC/PB 5.0 Vp-pTP22  
REC 1.2 Vp-pTP22  
PB 1.1 Vp-pTP23  
REC 1.2 Vp-pTP23  
PB 1.1 Vp-pTP24  
PB 1.1 Vp-pTP25  
REC 1.1 Vp-pTP25  
PB 1.1 Vp-pTP26  
REC 1.1 Vp-pTP26  
PB 1.0 Vp-pTP31  
REC 1.0 Vp-pTP32  
REC 1.0 Vp-pTP33  
REC 1.0 Vp-pTP310  
REC 1.3 Vp-pTP35  
REC 0.7 Vp-pTP36  
REC 1.1 Vp-pTP36  
PB 1.1 Vp-pTP37  
REC 1.1 Vp-pTP37  
PB 1.1 Vp-pTP50  
REC 0.18 Vp-p





- TO DIGITAL
- 1 D. FF
- 2 COL. L
- 3 COL. R
- 4 GND
- 5 V. IN
- 6 V. IN
- 7 GND
- 8 GND
- 9 GND
- 10 GND
- 11 GND
- 12 GND
- 13 GND
- 14 GND
- 15 GND
- 16 GND
- 17 GND
- 18 GND
- 19 GND
- 20 GND
- 21 GND
- 22 GND
- 23 GND
- 24 GND
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- 86 GND
- 87 GND
- 88 GND
- 89 GND
- 90 GND
- 91 GND
- 92 GND
- 93 GND
- 94 GND
- 95 GND
- 96 GND
- 97 GND
- 98 GND
- 99 GND
- 100 GND





1



A

B

C

4-15

4-15

E

F

**G**

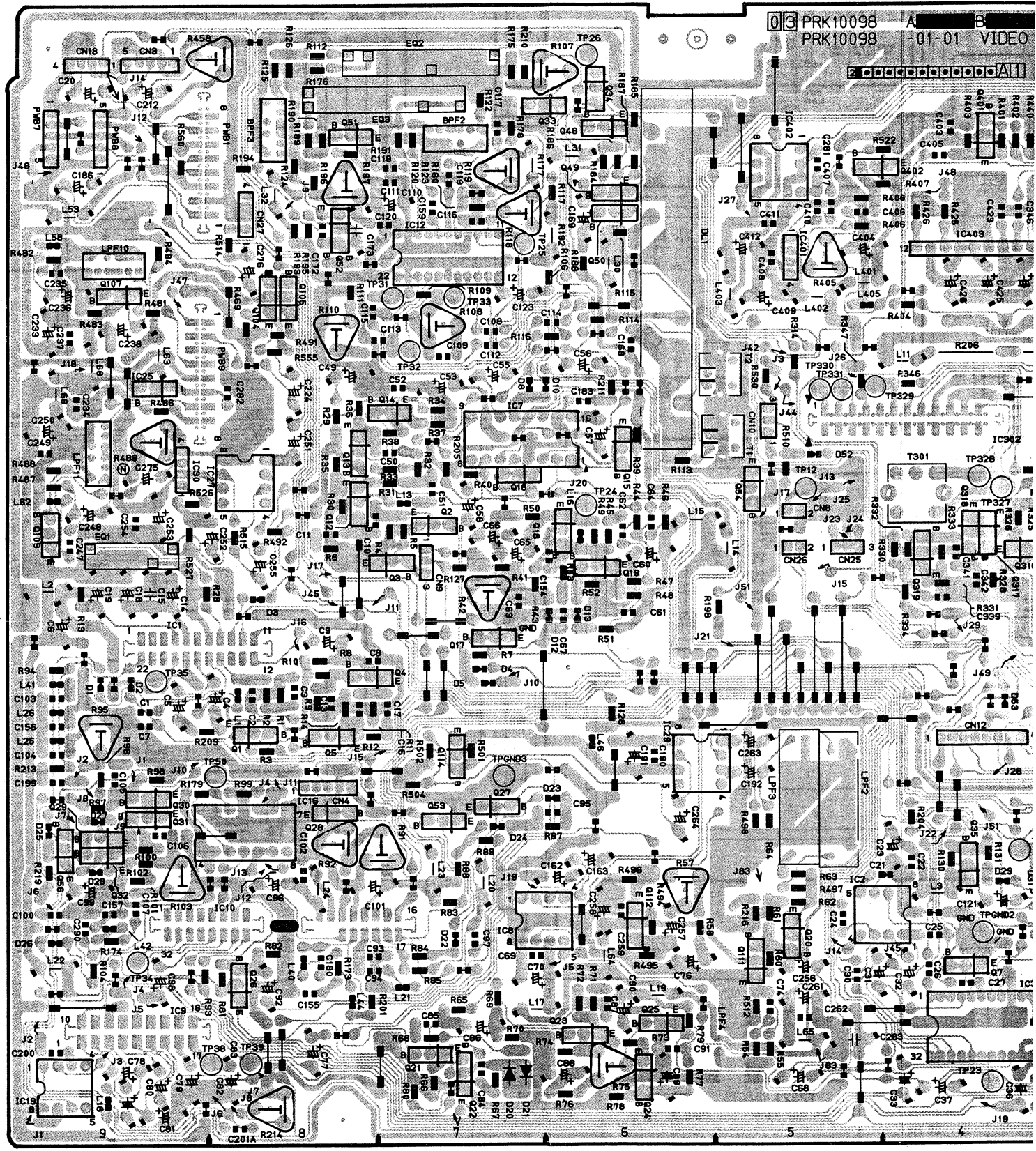
H





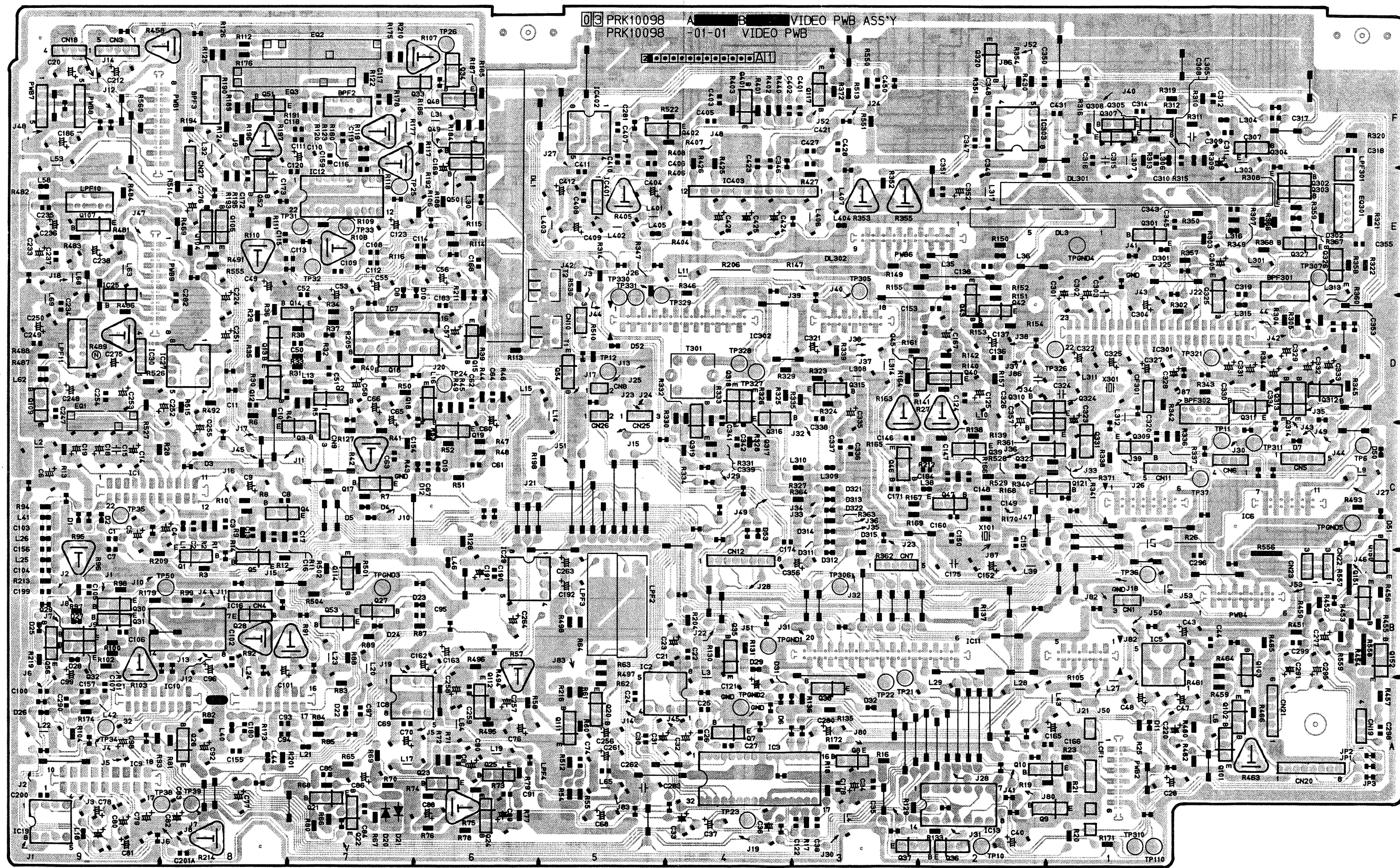
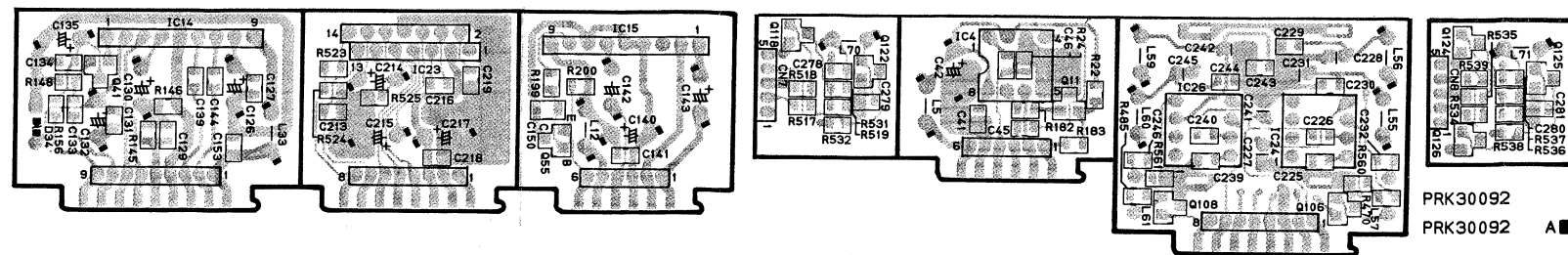
SYMBOL No.	REC	PB	SYMBOL No.	REC	PB	SYMBOL No.	REC	PB
Q118	B 5.0 5.1	5.0 5.1	Q314	B 0.0 0.1	0.0 0.1	CN7	1 0.0 1.7 4.5 0.1	0.0 1.7 4.6 0.1
Q121	B 2.4 1.8	2.4 1.8	Q315	B 3.6 3.0	-0.1 0.0	CN8	1 1.2 0.0	0.4 0.0
Q122	G 0.6 4.0	0.6 4.0	Q316	G 3.3 3.9	3.3 3.9	CN9	1 6.7 9.2 0.0	6.7 9.2 0.0
Q124	B 5.1 0.0	0.3 2.0 0.0	Q317	B 2.3 5.2 3.1	2.3 5.2 3.1	CN10	1 0.0 0.6 4.6	0.0 0.6 4.6
Q125	G 1.9 0.1	1.9 0.0	Q318	G 3.7 0.1	3.8 3.1	CN11	1 4.9 4.9 0.0 5.0	4.9 4.9 0.0 5.0
Q126	G 3.7 1.0	3.7 1.4 0.0	Q319	G 1.6 3.7 1.0	1.6 3.7 1.0	CN12	1 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Q130	B .	.	Q320	B 0.5 0.0 0.0	3.0 0.0 0.0	CN18	1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Q150	B 4.1 0.0 4.8	4.1 0.0 4.8	Q323	B 4.0 0.0 0.0	3.0 0.0 0.0	CN19	1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Q151	B 4.2 0.0 4.8	4.2 0.0 4.8	Q324	B 0.5 0.0 0.0	3.0 0.0 0.0	CN20	1 1.6 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	1.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Q152	B 4.2 0.0 4.9	4.2 0.0 4.9	Q325	B 0.0 0.1 0.0	5.2 0.0 0.0	CN21	1 5.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	5.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Q301	B 2.4 0.0 3.1	2.3 0.0 2.9	Q326	B 2.7 0.0 3.3	2.7 0.0 3.3	CN22	1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Q302	B 0.0 5.2 0.0	0.0 5.2 0.0	Q327	B 4.3 2.8 0.0	4.3 2.8 0.0	CN23	1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Q303	B 5.2 1.2 5.2	5.2 5.2 5.2	Q331	B 4.0 0.0 0.0	4.7 0.0 0.0	CN25	1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Q304	B 4.4 5.2 3.7	2.3 1.7 1.7	Q401	B 7.3 12.3 6.6	7.3 12.3 6.6	CN26	1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Q305	B 3.3 2.6	1.6 4.2 1.0	Q402	B 1.8 12.3 1.2	1.8 12.3 1.2	CN27	1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Q307	B 3.2 2.6	1.7 1.1	CONNECTOR			CN1	1 12.3 5.2 0.0	12.3 5.2 0.0
Q308	B 2.6 3.3	1.1 1.7	CN3	1 1.3 1.4 0.1	1.3 1.4 0.1	CN3	1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Q309	B 2.4 5.2 1.7	2.4 5.2 1.7	CN4	1 5.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	5.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	CN4	1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Q310	B 0.0 0.0	5.2 0.0	CN5	1 -0.2 1.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	CN5	1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Q311	B 3.7 3.1	3.7 3.1	CN6	1 4.4 5.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	2.3 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	CN6	1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Q312	B 3.2 0.0 0.0	3.2 0.0 0.0						
Q313	B 0.0 3.2	0.0 3.2						

4.13 VIDEO CIRCUIT BOARD





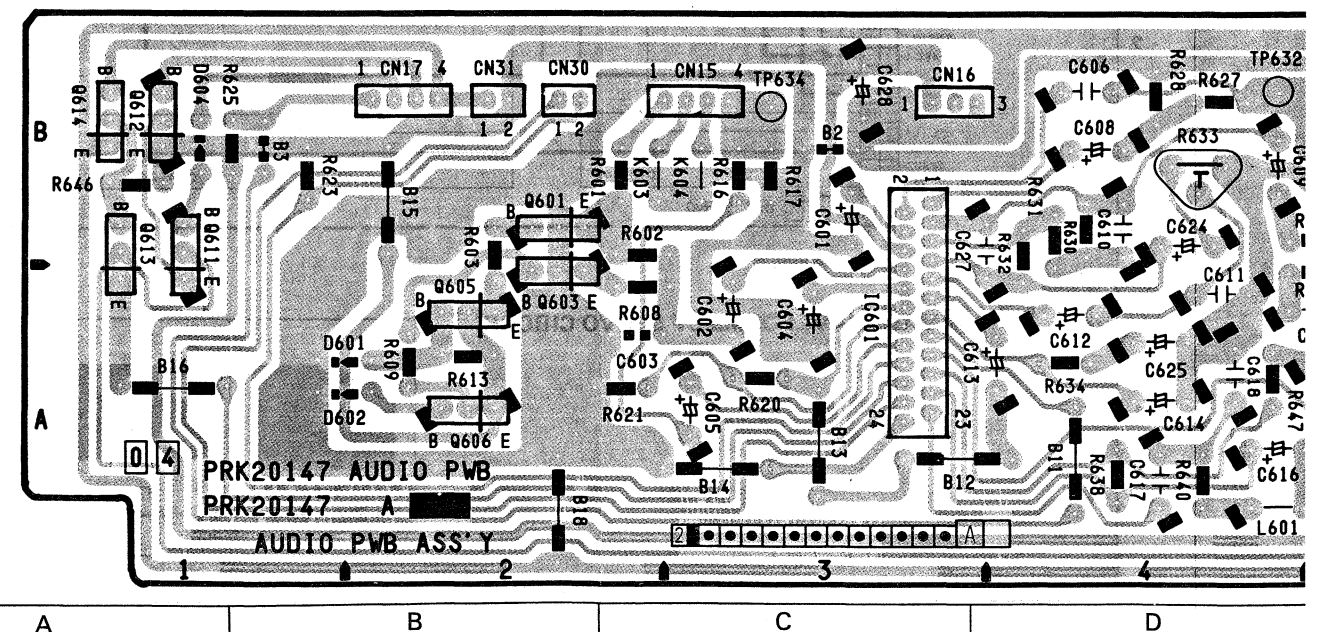
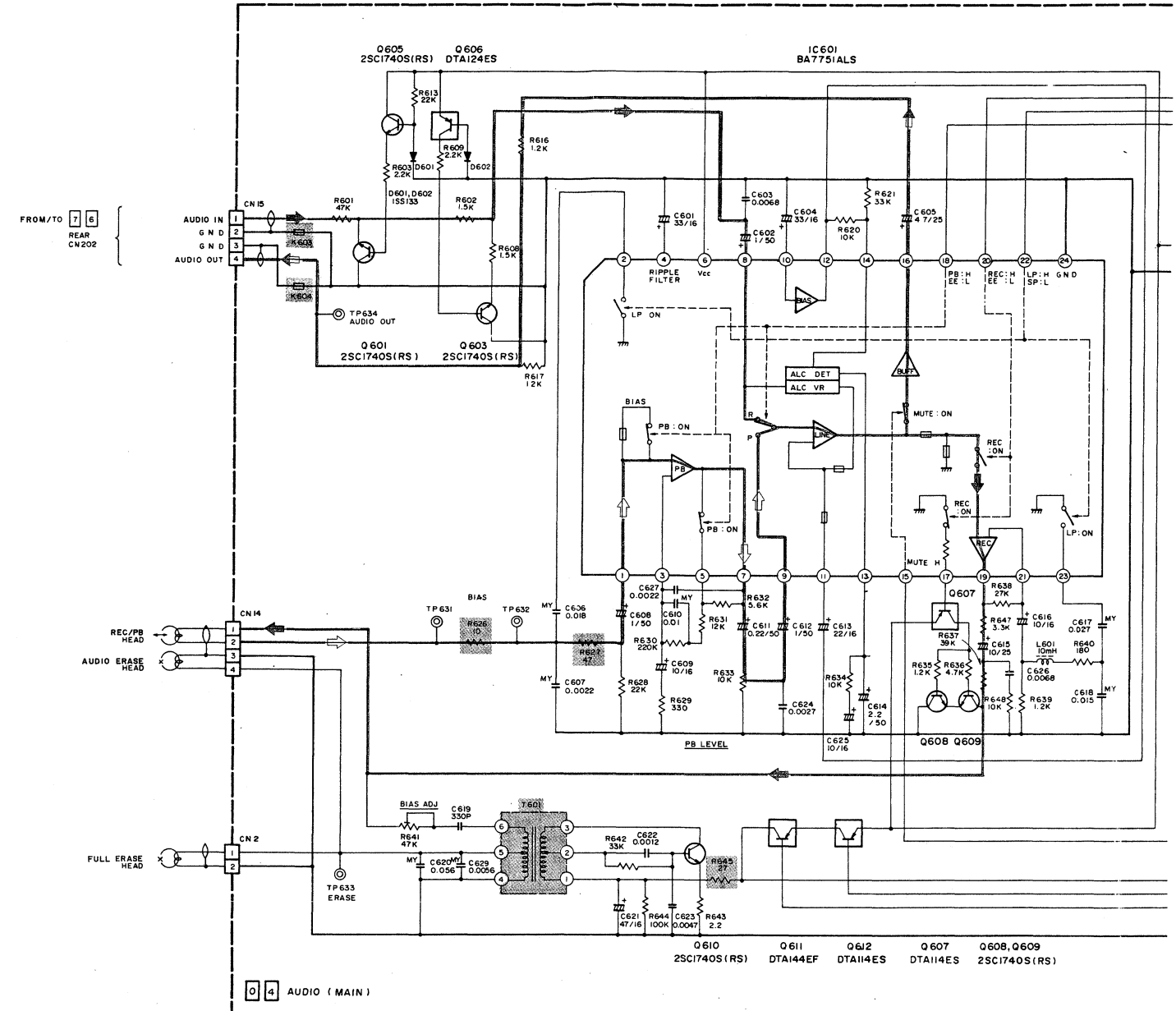
# 4.13 VIDEO CIRCUIT BOARD



A B C 4-16 4-16 E F G H

SYMBOL No.	REC	PB	SYMBOL No.	REC	PB
<b>INTEGRATED CIRCUIT</b>					
IC601	1	5.6	Q609	B	-19.6
	2	-0.0	Q609	C	0.0
	3	12.5	Q609	E	-14.9
	4	12.5	Q610	B	0.2
	5	12.5	Q610	C	11.4
	6	12.5	Q610	E	0.0
	7	12.5	Q611	B	0.6
	8	12.5	Q611	C	12.2
	9	12.5	Q611	E	12.4
	10	12.5	Q612	B	0.3
	11	12.5	Q612	C	12.4
	12	12.5	Q612	E	12.5
	13	12.5	Q613	B	12.4
	14	12.5	Q613	C	12.2
	15	12.5	Q613	E	11.1
	16	12.5	Q614	B	0.0
	17	12.5	Q614	C	12.4
	18	12.5	Q614	E	0.0
	19	12.5	<b>CONNECTOR</b>		
	20	12.5	CN2	1	0.0
	21	12.5	CN2	2	0.0
	22	12.5	CN14	1	0.0
	23	12.5	CN14	2	0.0
	24	12.5	CN14	3	0.0
<b>TRANSISTOR</b>					
Q601	B	0.3	CN15	1	0.0
Q601	C	0.0	CN15	2	0.0
Q601	E	0.0	CN15	3	0.0
Q603	B	0.8	CN15	4	0.0
Q603	C	0.0	CN15	5	0.0
Q603	E	0.0	CN15	6	0.0
Q605	B	0.6	CN16	1	12.5
Q605	C	12.5	CN16	2	5.3
Q605	E	0.3	CN16	3	0.0
Q606	B	0.6	CN17	1	0.1
Q606	C	12.5	CN17	2	0.1
Q606	E	12.5	CN17	3	0.3
Q607	B	-19.5	CN30	1	0.0
Q607	C	12.5	CN30	2	0.0
Q607	E	12.5	CN30	3	5.9
Q608	B	-19.5			
Q608	C	0.0			
Q608	E	-14.9			

#### 4.14 AUDIO SCHEMATIC DIAGRAM AND CIRCUIT BOARD





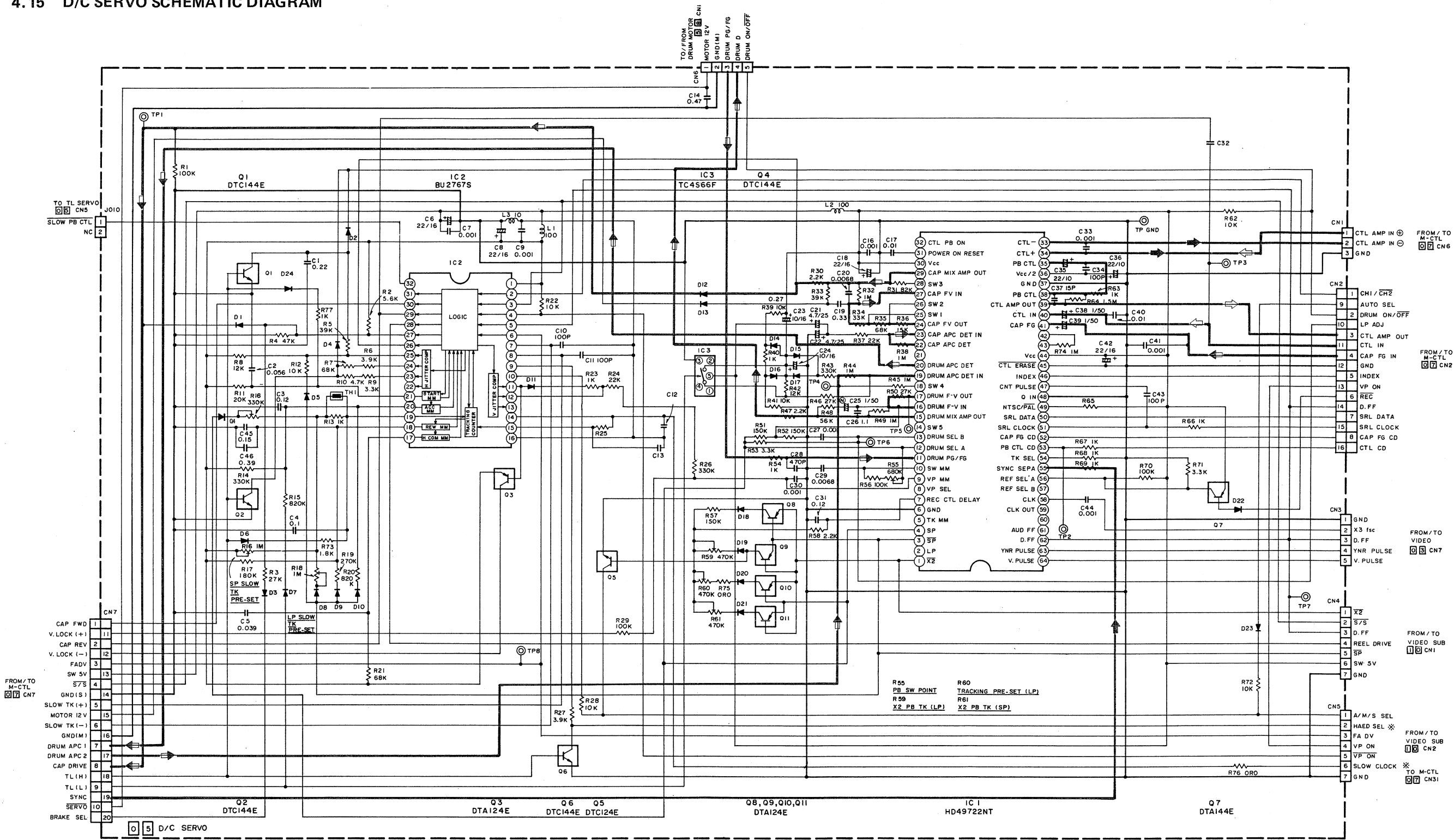
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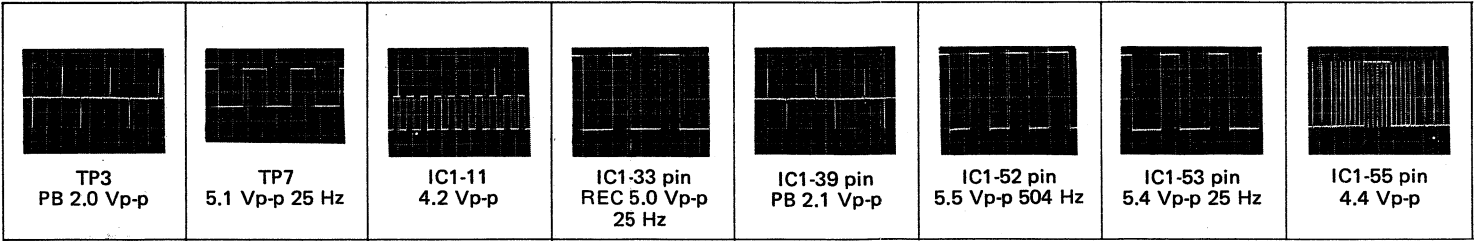
— D/C SERVO Voltage —

SYMBOL No.	REC	PB	SYMBOL No.	REC	PB	SYMBOL No.	REC	PB	
INTEGRATED CIRCUIT			IC2	24 25 26 27 28 29 30 31 32	0.2 0.0 3.6 0.0 5.0 0.1 5.0	CN4	1 2 3 4 5 6 7	4.9 5.0 — 5.0 0.0 0.0	4.9 5.0 — 5.0 0.0 0.0
IC1	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64	4.3 0.0 0							

4.15 D/C SERVO SCHEMATIC DIAGRAM



— MAIN WAVEFORMS OF SERVO CIRCUIT —



A

B

C

4-18

4-18

E

F

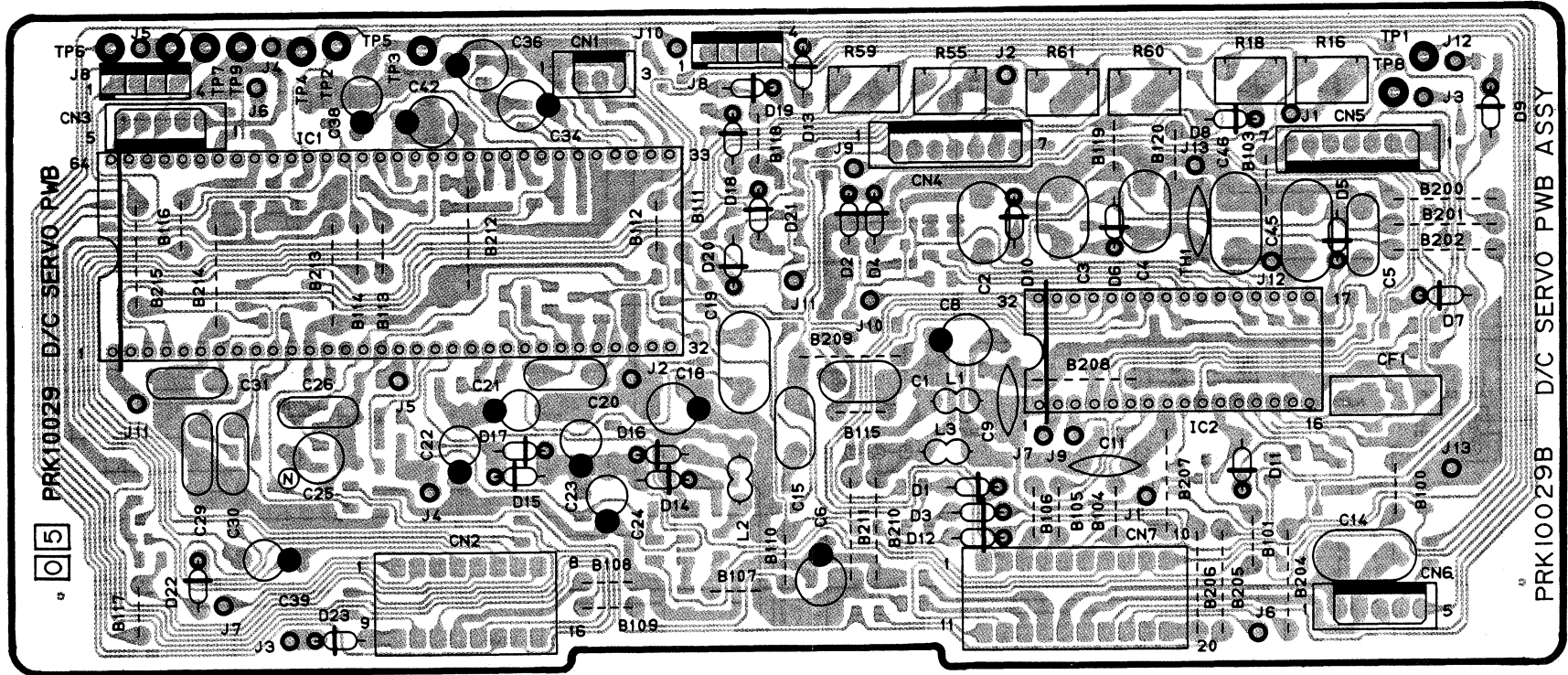
G

H

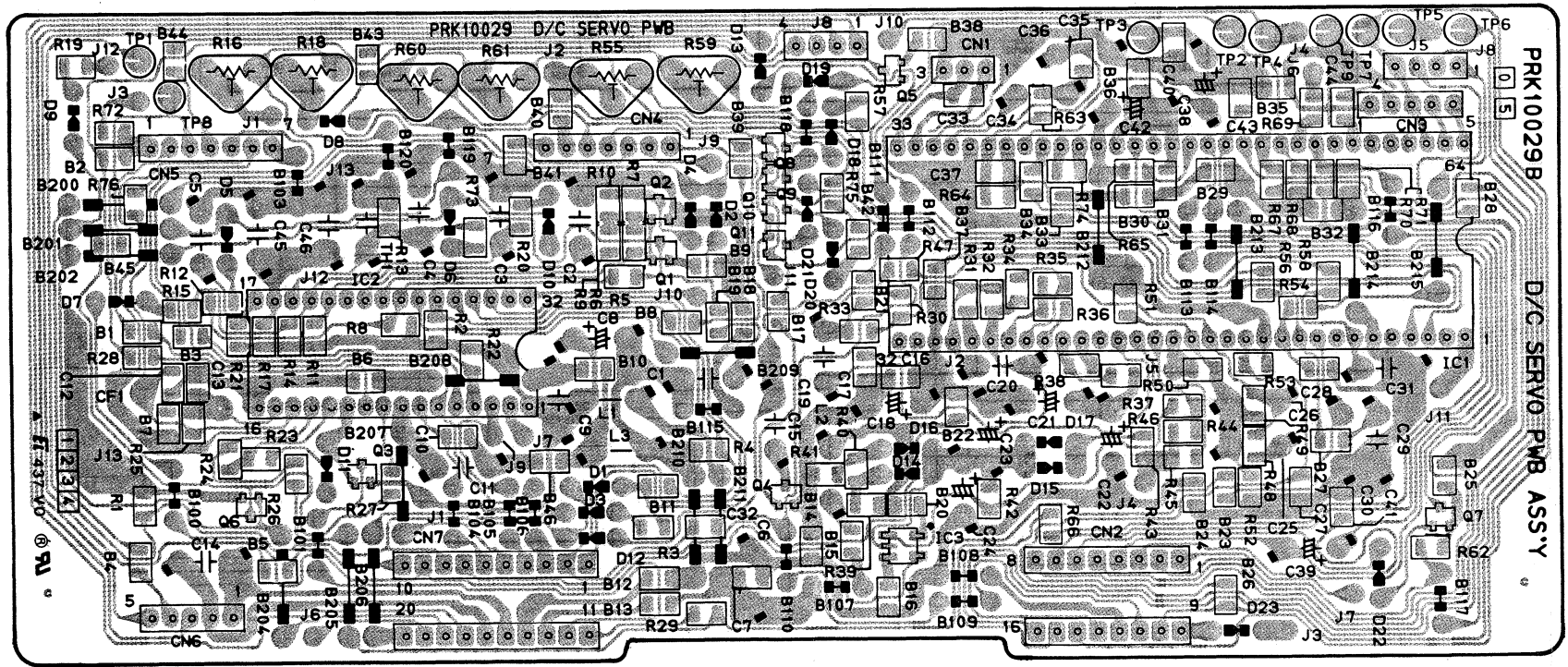


4.16 D/C SERVO CIRCUIT BOARD

— Front —



— Rear —



A

B

C

4-19

4-19

E

F

G

H

6

## — TIME LAPSE SERVO SCHEMATIC DIAGRAM (2/2) —

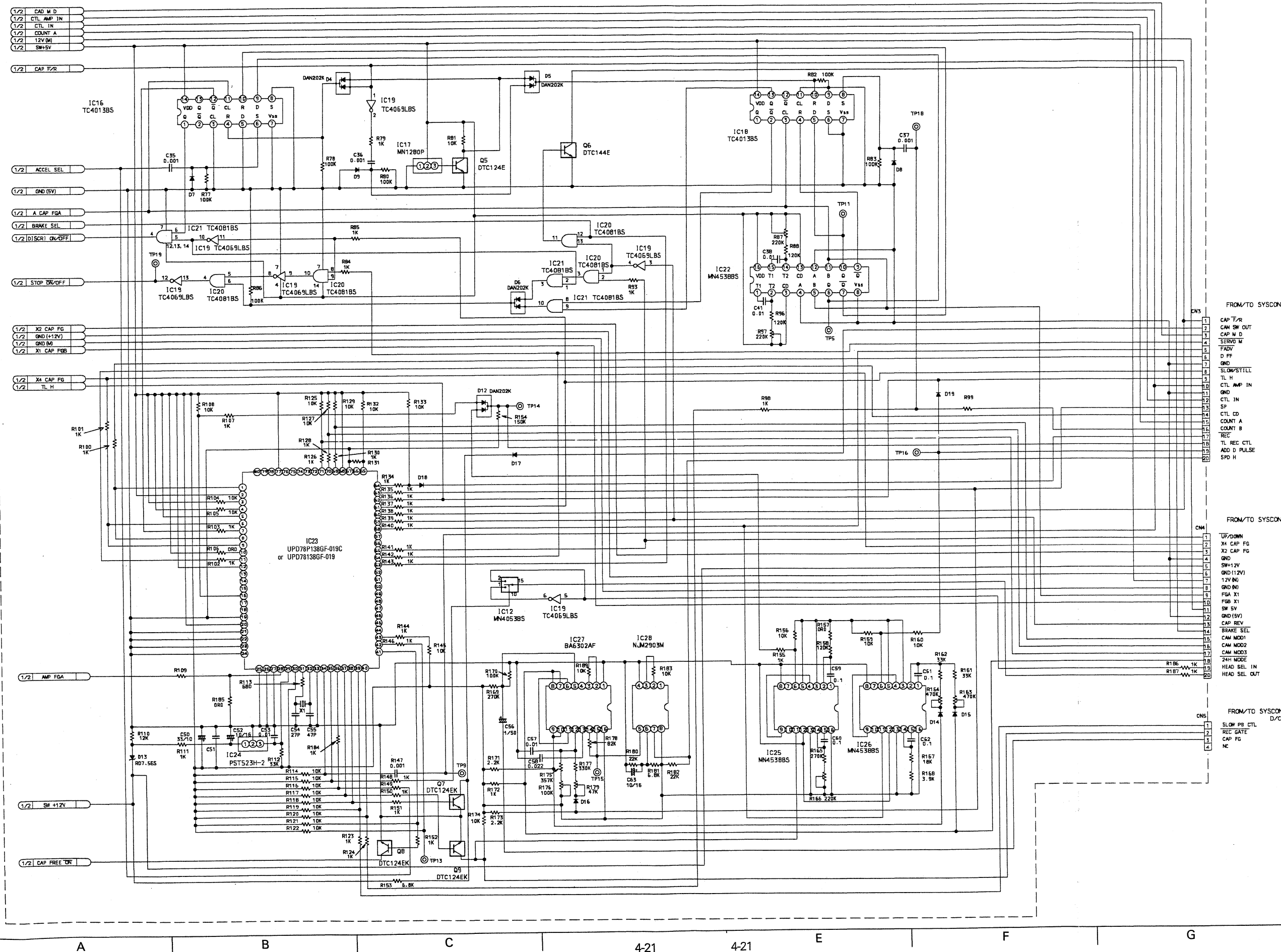
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4

3

2

1



FROM/TO SYSCON

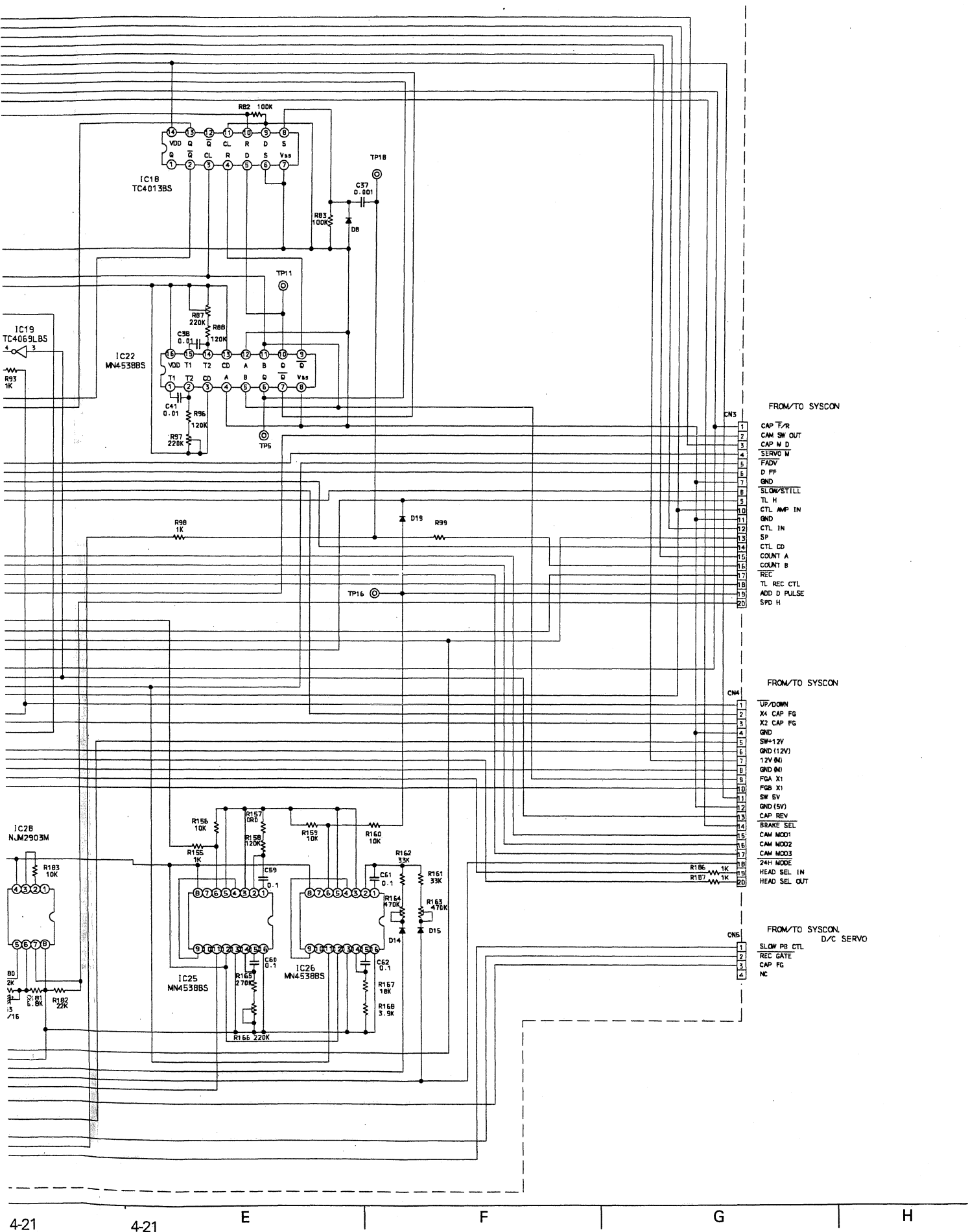
1 CAP F/R  
2 CAM SW OUT  
3 CAP M D  
4 SERVO M  
5 FADV  
6 D FF  
7 GND  
8 SLOW/STILL  
9 TL H  
10 CTL AMP IN  
11 GND  
12 CTL IN  
13 SP  
14 CTL CD  
15 COUNT A  
16 COUNT B  
17 REC  
18 TL REC CTL  
19 ADD D PULSE  
20 SFD H

FROM/TO SYSCON

1 UP/DOWN  
2 X4 CAP FG  
3 X2 CAP FG  
4 GND  
5 SW+12V  
6 GND (+12V)  
7 12V (M)  
8 GND (M)  
9 FGA X1  
10 FGB X1  
11 SW 5V  
12 GND (5V)  
13 CAP REV  
14 BRAKE SEL  
15 CAM MOD1  
16 CAM MOD2  
17 CAM MOD3  
18 24H MODE  
19 HEAD SEL IN  
20 HEAD SEL OUT

FROM/TO SYSCON

1 D/C SERVO  
2 SLOW PB CTL  
3 REC GATE  
4 CAP FG  
5 NC



# — TIMEF LAPSE SERVO Voltage (1/2) —

SYMBOL No.		REC	PB	SYMBOL No.		REC	PB	SYMBOL No.		REC	PB	SYMBOL No.		REC	PB																														
INTEGRATED CIRCUIT				IC10	1 2 3 4 5 6 7 8	5 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0	IC18	1 2 3 4 5 6 7 8 9 10 11 12 13 14	0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0	IC23	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69

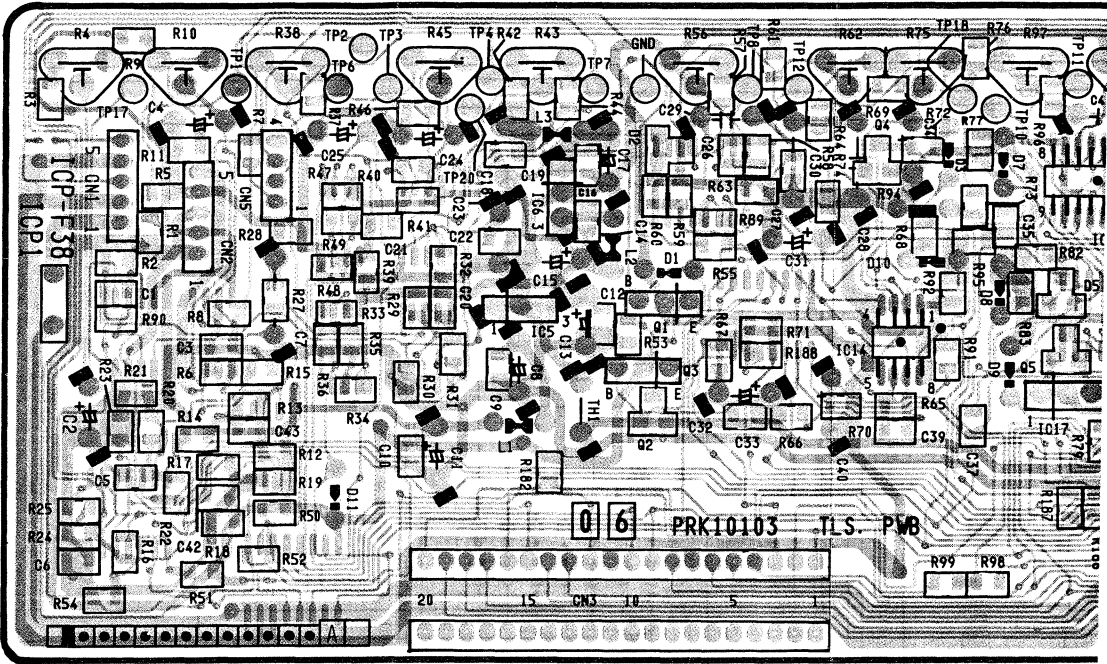


— TIME LAPSE SERVO Voltage (2/2) —

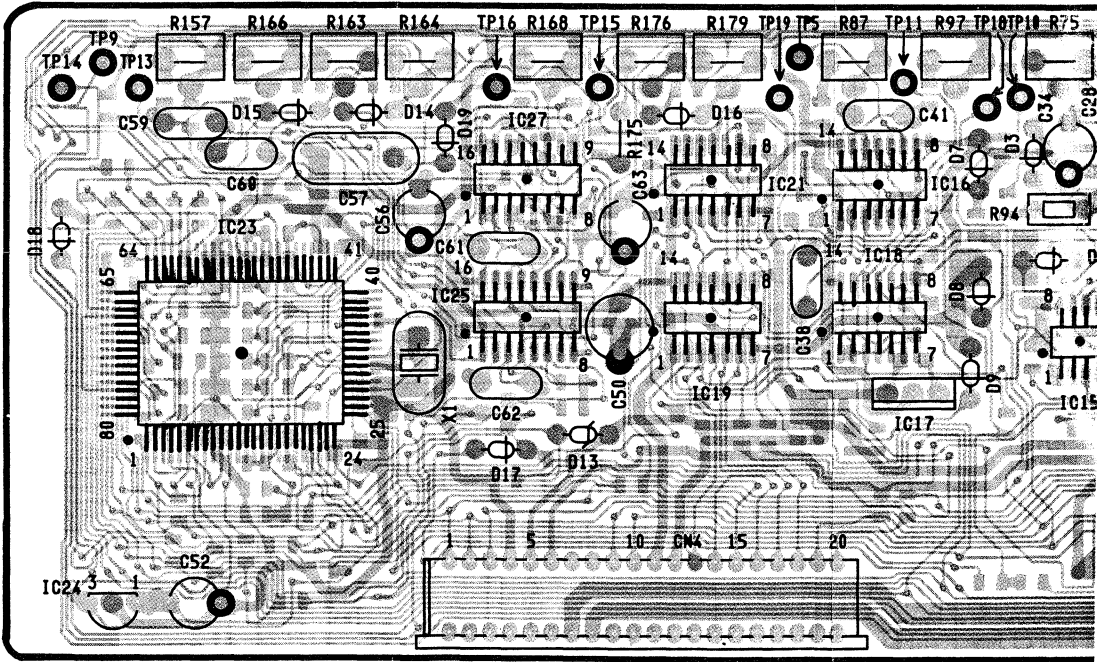
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	2	4.4	5.0			2.0	3.2	
	3	5.5	5.1	0.0	0.0	CONNECTOR		
	4	0.0	5.5	Q9	BCE		0.3	0.0
	5	0.0	5.1				5.1	5.1
	6	0.3	5.0	0.0	0.0			
	7	4.5	5.5	0.0	0.0			
	8	0.0	5.0	0.0	0.0			
	9	5.1	5.0	0.0	0.0			
	10	1.8	5.0	0.0	0.0			
	11	4.5	5.0	0.0	0.0			
	12	0.0	5.0	0.0	0.0			
	13	5.1	5.1	0.0	0.3			
	14	4.4	4.9	0.0	-0.1			
	15	0.0	4.0	0.0	3.6			
	16	5.1	5.1	0.0	0.0			
IC26	1	0.0	0.0	CN1	12345		12.1	0.4
	2	4.3	0.3				0.0	0.0
	3	5.5	5.5	0.6	1.1			
	4	5.5	5.5	2.6	0.3			
	5	5.5	5.5	0.0	-0.1			
	6	5.5	5.5	0.0	3.6			
	7	0.1	5.0	0.0	0.0			
	8	0.0	5.0	0.0	0.0			
	9	5.5	5.0	0.0	0.0			
	10	0.0	5.0	0.0	0.0			
	11	0.0	5.0	0.0	0.0			
	12	0.0	5.0	0.0	0.0			
	13	5.5	5.5	0.0	0.0			
	14	5.5	5.5	0.0	0.0			
	15	0.0	5.0	0.0	0.0			
	16	5.1	5.0	0.0	0.0			
IC27	1	0.0	0.0	CN2	12345	5.1	5.1	
	2	1.1	1.1			5.0	5.0	
	3	1.1	1.1	2.5	2.5			
	4	2.7	2.7	0.0	0.0			
	5	1.4	2.4	0.0	0.0			
	6	2.3	2.3	0.0	0.0			
	7	0.2	0.2	0.0	0.0			
	8	0.2	0.2	0.0	0.0			
	9	5.5	5.5	0.0	0.0			
	10	5.5	5.5	0.0	0.0			
	11	3.3	3.3	0.0	0.0			
	12	4.4	4.4	0.0	0.0			
	13	3.3	3.3	0.0	0.0			
	14	2.9	2.9	0.0	0.0			
	15	1.7	1.7	0.0	0.0			
	16	5.1	5.1	0.0	0.0			
IC28	1	0.0	0.0	CN3	12345678910111213141516	3.0	3.7	
	2	0.3	0.3			0.0	0.0	
	3	0.3	0.3	0.8	0.1			
	4	0.0	0.0	5.1	1.1			
	5	0.7	0.7	4.6	6.6			
	6	3.8	3.8	5.5	2.2			
	7	0.0	0.0	0.0	0.0			
	8	0.2	0.2	0.0	0.0			
	9	5.5	5.5	0.0	0.0			
	10	5.5	5.5	0.0	0.0			
	11	3.3	3.3	0.0	0.0			
	12	4.4	4.4	0.0	0.0			
	13	3.3	3.3	0.0	0.0			
	14	2.9	2.9	0.0	0.0			
	15	1.7	1.7	0.0	0.0			
	16	5.1	5.1	0.0	0.0			
TRANSISTOR				CN4	1234567891011121314151617181920	3.8	4.8	
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Q2	BCE	0.0 2.3 0.0	5.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0			
Q3	BCE	1.2 5.1 1.7	3.2 5.7	0.0 0.0 0.0	0.0 0.0 0.0			
Q4	BCE	-0.2 2.1 0.0	0.6 2.3 0.0	0.0 0.0 0.0	0.0 0.0 0.0			
Q5	BCE	4.7 0.0 0.0	4.7 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0			
Q6	BCE	0.2 1.6 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0			
Q7	BCE	0.0 12.4 0.0	0.0 12.4 0.0	0.0 0.0 0.0	0.0 0.0 0.0			
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4.18 TIME LAPSE SERVO CIRCUIT BOARD

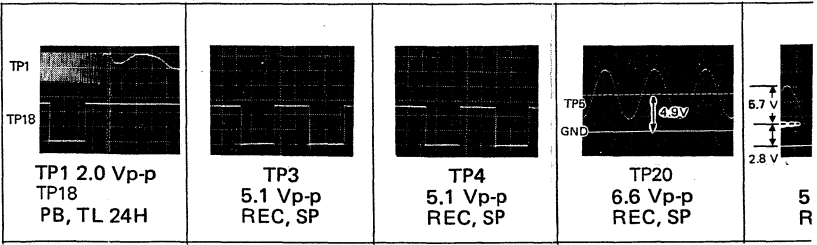
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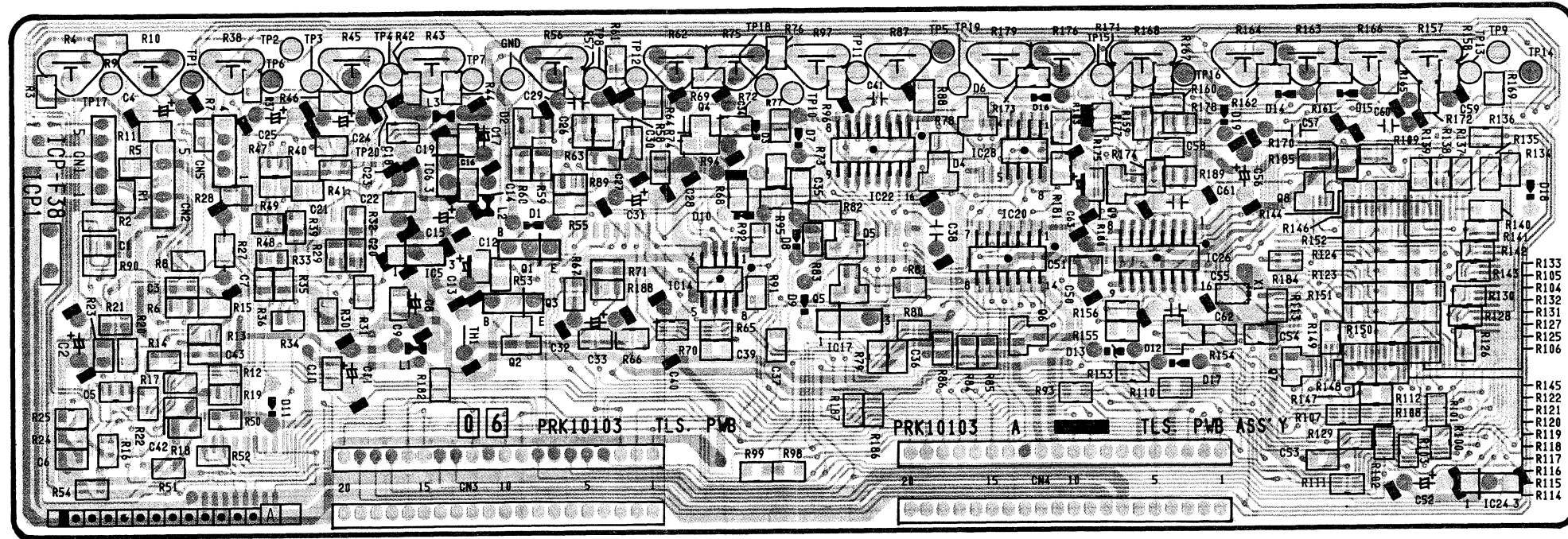
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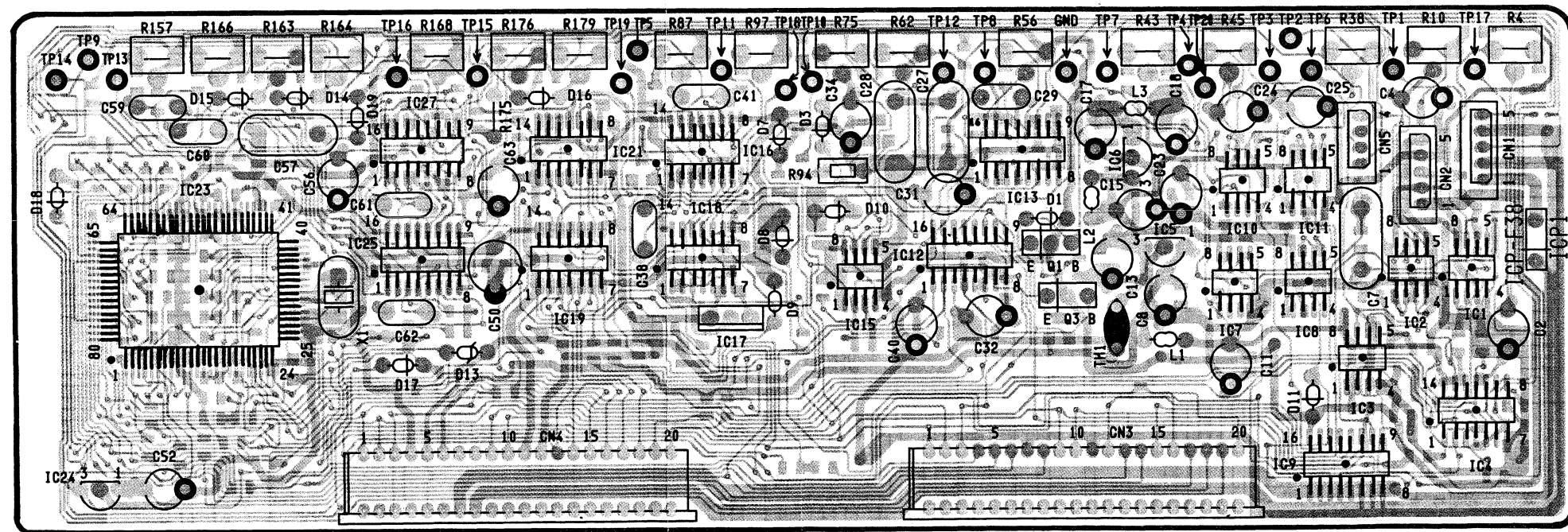
— MAIN WAVEFORMS OF TIME LAPSE SERVO CIRCUIT —



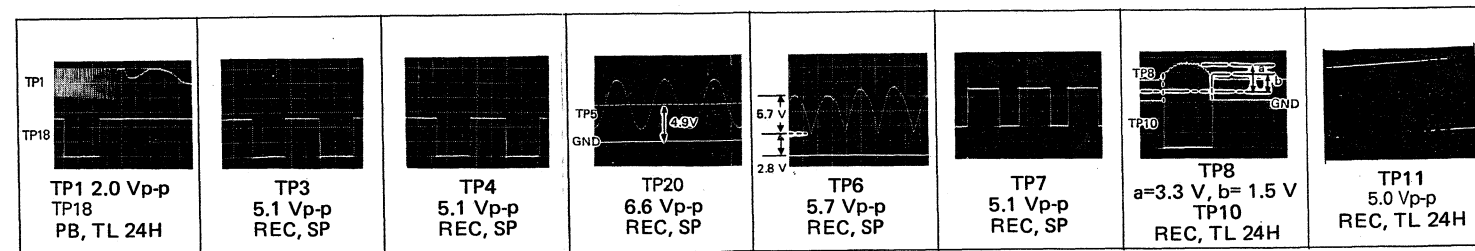
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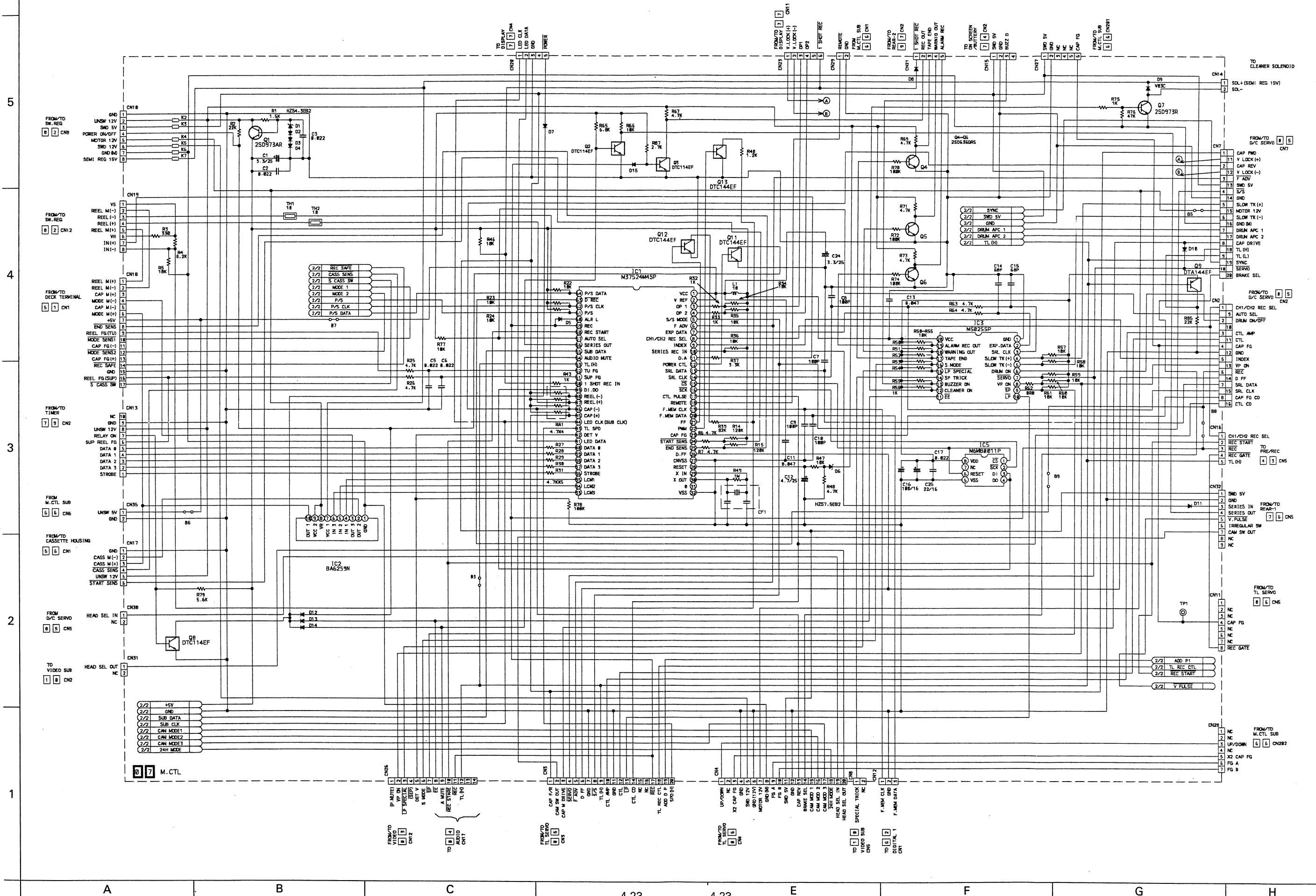


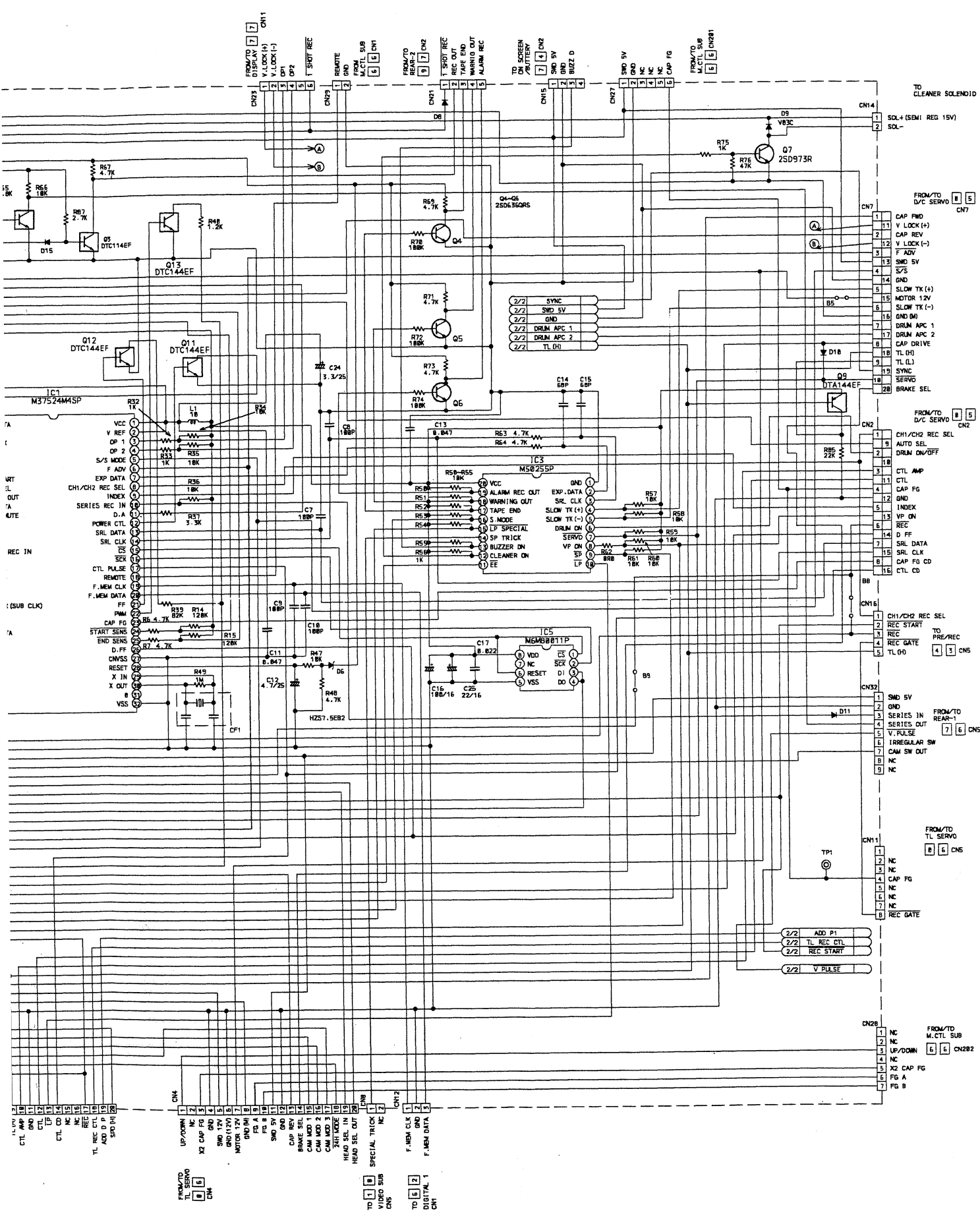
— MAIN WAVEFORMS OF TIME LAPSE SERVO CIRCUIT —



A B C 4-22 4-22 E F G H







SYMBOL No.	REC	PB	SYMBOL No.	REC	PB	SYMBOL No.	REC	PB	SYMBOL No.	REC	PB
INTEGRATED CIRCUIT											
IC1	1	0.0	IC3	1	0.0	IC102	1	0.0	Q102	B	0.5
	2	0.0		2	0.0		2	0.0		B	0.1
	3	0.0		3	0.0		3	0.0		B	0.4
	4	0.0		4	0.0		4	0.0		B	0.6
	5	0.0		5	0.0		5	0.0	Q103	B	0.1
	6	0.0		6	0.0		6	0.0		B	0.6
	7	0.0		7	0.0		7	0.0		B	0.1
	8	0.0		8	0.0		8	0.0		B	0.6
	9	0.0		9	0.0		9	0.0	Q104	B	0.7
	10	0.0		10	0.0		10	0.0		B	0.1
IC2	1	0.0	IC4	1	0.0	IC103	1	0.0	CONNECTOR		
	2	0.0		2	0.0		2	0.0	CN1	1	0.0
	3	0.0		3	0.0		3	0.0	CN2	1	0.0
	4	0.0		4	0.0		4	0.0		2	0.0
	5	0.0		5	0.0		5	0.0		3	0.0
	6	0.0		6	0.0		6	0.0		4	0.0
	7	0.0		7	0.0		7	0.0	CN3	1	0.0
	8	0.0		8	0.0		8	0.0		2	0.0
	9	0.0		9	0.0		9	0.0		3	0.0
	10	0.0		10	0.0		10	0.0		4	0.0
IC3	1	0.0	IC5	1	0.0	IC6	1	0.0	TRANSISTOR		
	2	0.0		2	0.0		2	0.0	Q1	B	0.5
	3	0.0		3	0.0		3	0.0	Q2	B	0.1
	4	0.0		4	0.0		4	0.0	Q3	B	0.1
	5	0.0		5	0.0		5	0.0	Q4	B	0.1
	6	0.0		6	0.0		6	0.0	Q5	B	0.1
	7	0.0		7	0.0		7	0.0	Q6	B	0.1
	8	0.0		8	0.0		8	0.0	Q7	B	0.1
	9	0.0		9	0.0		9	0.0	Q8	B	0.1
	10	0.0		10	0.0		10	0.0	Q9	B	0.1
IC4	1	0.0	IC7	1	0.0	IC8	1	0.0	CN4	1	0.0
	2	0.0		2	0.0		2	0.0		2	0.0
	3	0.0		3	0.0		3	0.0		3	0.0
	4	0.0		4	0.0		4	0.0		4	0.0
	5	0.0		5	0.0		5	0.0	CN5	1	0.0
	6	0.0		6	0.0		6	0.0		2	0.0
	7	0.0		7	0.0		7	0.0		3	0.0
	8	0.0		8	0.0		8	0.0		4	0.0
	9	0.0		9	0.0		9	0.0	CN6	1	0.0
	10	0.0		10	0.0		10	0.0		2	0.0
IC5	1	0.0	IC8	1	0.0	Q101	1	0.0		3	0.0
	2	0.0		2	0.0		2	0.0		4	0.0
	3	0.0		3	0.0		3	0.0		5	0.0
	4	0.0		4	0.0		4	0.0		6	0.0
	5	0.0		5	0.0		5	0.0		7	0.0
	6	0.0		6	0.0		6	0.0		8	0.0
	7	0.0		7	0.0		7	0.0		9	0.0
	8	0.0		8	0.0		8	0.0		10	0.0
	9	0.0		9	0.0		9	0.0		11	0.0
	10	0.0		10	0.0		10	0.0		12	0.0
IC6	1	0.0	Q102	1	0.0		1	0.0		13	0.0
	2	0.0		2	0.0		2	0.0		14	0.0
	3	0.0		3	0.0		3	0.0		15	0.0
	4	0.0		4	0.0		4	0.0		16	0.0
	5	0.0		5	0.0		5	0.0		17	0.0
	6	0.0		6	0.0		6	0.0		18	0.0
	7	0.0		7	0.0		7	0.0		19	0.0
	8	0.0		8	0.0		8	0.0		20	0.0
	9	0.0		9	0.0		9	0.0		21	0.0
	10	0.0		10	0.0		10	0.0		22	0.0
IC7	1	0.0	Q103	1	0.0		1	0.0		23	0.0
	2	0.0		2	0.0		2	0.0		24	0.0
	3	0.0		3	0.0		3	0.0		25	0.0
	4	0.0		4	0.0		4	0.0		26	0.0
	5	0.0		5	0.0		5	0.0		27	0.0
	6	0.0		6	0.0		6	0.0		28	0.0
	7	0.0		7	0.0		7	0.0		29	0.0
	8	0.0		8	0.0		8	0.0		30	0.0
	9	0.0		9	0.0		9	0.0		31	0.0
	10	0.0		10	0.0		10	0.0		32	0.0
IC8	1	0.0	Q104	1	0.0		1	0.0		33	0.0
	2	0.0		2	0.0		2	0.0		34	0.0
	3	0.0		3	0.0		3	0.0		35	0.0
	4	0.0		4	0.0		4	0.0		36	0.0
	5	0.0		5	0.0		5	0.0		37	0.0
	6	0.0		6	0.0		6	0.0		38	0.0
	7	0.0		7	0.0		7	0.0		39	0.0
	8	0.0		8	0.0		8	0.0		40	0.0
	9	0.0		9	0.0		9	0.0		41	0.0
	10	0.0		10	0.0		10	0.0		42	0.0

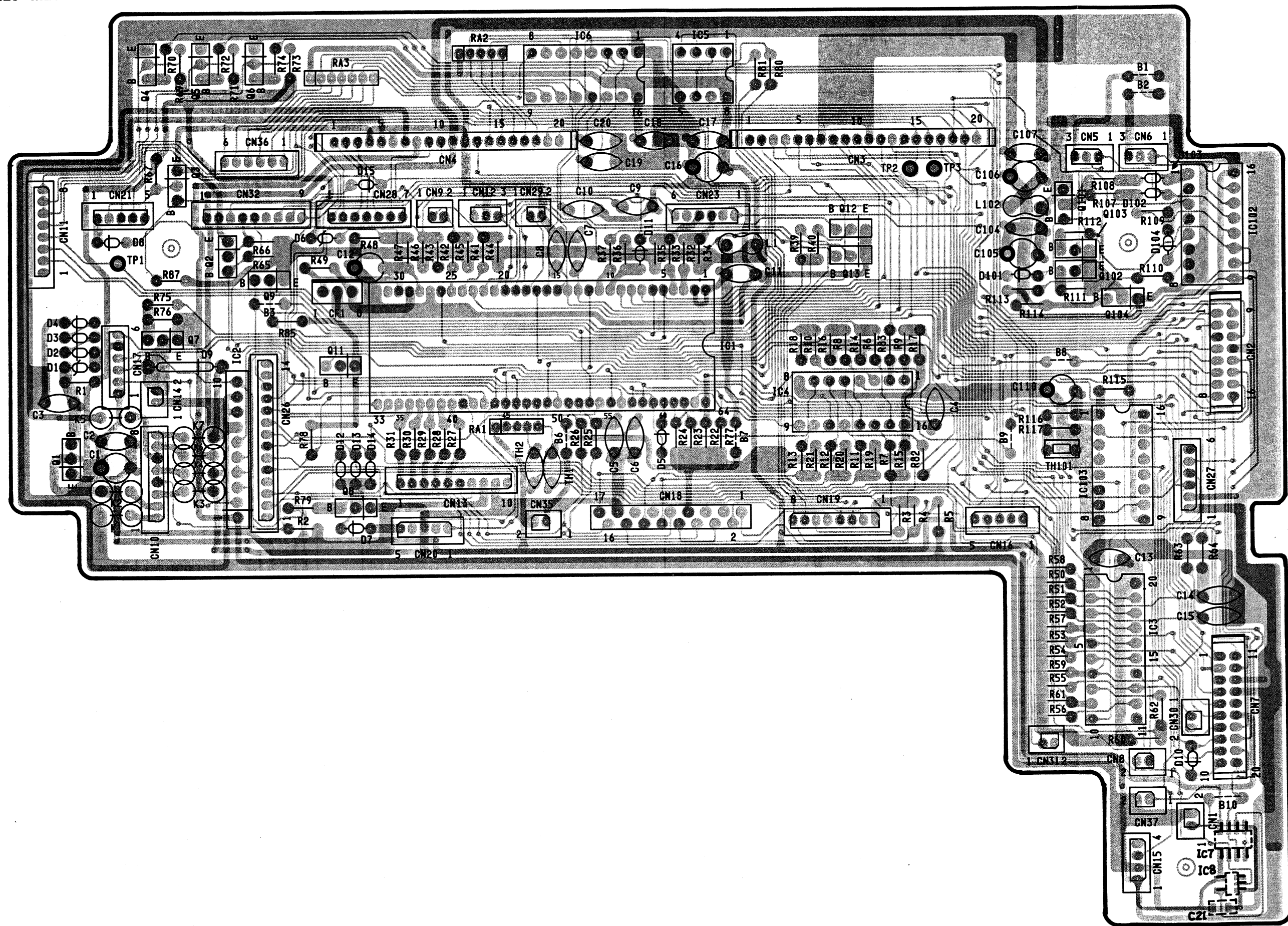
SYMBOL No.	REC	PB	SYMBOL No.	REC	PB	SYMBOL No.	REC	PB																																																			
CN7	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	0.1 1.1 2.1 3.1 4.1 5.1 6.1 7.1 8.1 9.1 10.1 11.1 12.1 13.1 14.1 15.1 16.1 17.1 18.1 19.1 20.1	0.1 1.1 2.1 3.1 4.1 5.1 6.1 7.1 8.1 9.1 10.1 11.1 12.1 13.1 14.1 15.1 16.1 17.1 18.1 19.1 20.1	CN18	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	2.4 0.0 0.2 1.0 0.0 1.4 1.1 1.1 0.0 0.2 0.0 0.0 0.0 0.1 0.3 0.5 0.2	2.4 0.0 0.2 1.0 1.1 1.1 1.1 1.1 0.0 0.2 0.0 0.0 0.0 0.1 0.3 0.4 0.2	CN32	1 2 3 4 5 6 7 8 9	5.1 0.0 0.4 5.1 5.1 1.0 2.0 5.1	5.1 0.0 0.4 5.1 5.1 1.1 1.1 1.1 5.1	CN35	1 2	5.0 0.0	5.1 5.1	CN36	1 2 3 4 5 6	5.1 0.0 0.0 0.0 0.0 0.0	5.1 0.0 0.0 0.0 0.0 0.0	CN37	1 2	0.4 0.0	0.4 0.0																																				
CN8	1 2	0.0 0.0	0.0 0.0	CN19	1 2 3 4 5 6 7 8	3.7 0.1 4.1 0.1 2.3 3.6 1.9 2.0	3.7 0.1 4.1 0.1 2.3 3.7 2.0 2.1	CN20	1 2 3 4 5	0.2 0.1 0.0 — 0.3	0.2 0.1 0.1 — 0.4	CN21	1 2 3 4 5	4.9 1.2 4.4 5.1 0.1	4.9 0.0 0.0 0.1 0.1	CN23	1 2 3 4 5 6	0.7 0.7 5.1 5.1 — —	0.6 2.9 5.1 5.1 — —	CN12	1 2 3	0.0 0.0 0.1	0.1 0.0 0.1	CN26	1 2 3 4 5 6 7 8 9 10 11 12 13 14	0.2 0.1 5.1 0.0 0.0 0.0 0.0 0.0 0.1 0.3 0.0 — —	-0.2 0.1 5.2 0.0 0.0 0.1 0.1 0.0 1.2 6.0 0.1 0.1 0.1	CN15	1 2 3 4	5.1 0.0 0.0 —	5.1 0.0 0.0 —	CN27	1 2 3 4 5 6	5.1 0.1 5.2 0.1 5.0 0.4	5.1 0.0 5.1 0.1 1.5 0.4	CN16	1 2 3 4 5	5.1 0.0 0.0 5.1 0.0	5.1 1.3 5.1 0.0 0.0	CN28	1 2 3 4 5 6 7	0.2 0.2 0.3 0.2 0.1 2.6 2.5	0.3 0.1 0.3 0.2 0.1 2.6 2.5	CN17	1 2 3 4 5 6	0.0 10.0 10.0 12.6 5.1	0.1 11.1 10.2 12.6 5.1	CN29	1 2	5.7 0.0	5.7 0.0	CN30	1 2	0.1 —	0.0 —	CN31	1 2	0.0 —	0.0 .



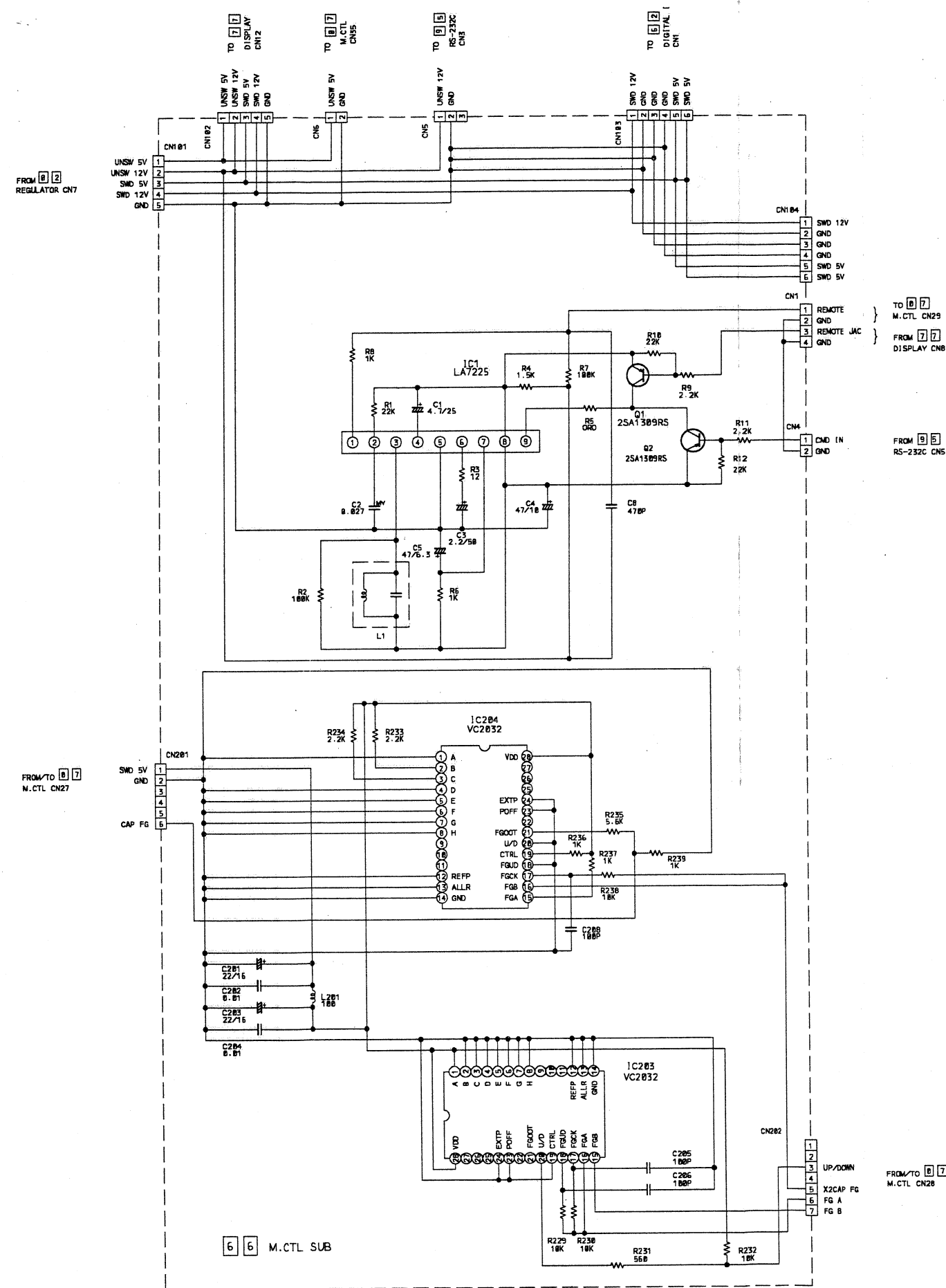


	S925	S920
CN12	○	×
CN36	○	×
CN37	○	×
B8	×	○
B9	○	×
B10	×	○
IC7	○	×
IC8	○	×
C21	○	×

4.20 MECHACON CIRCUIT BOARD



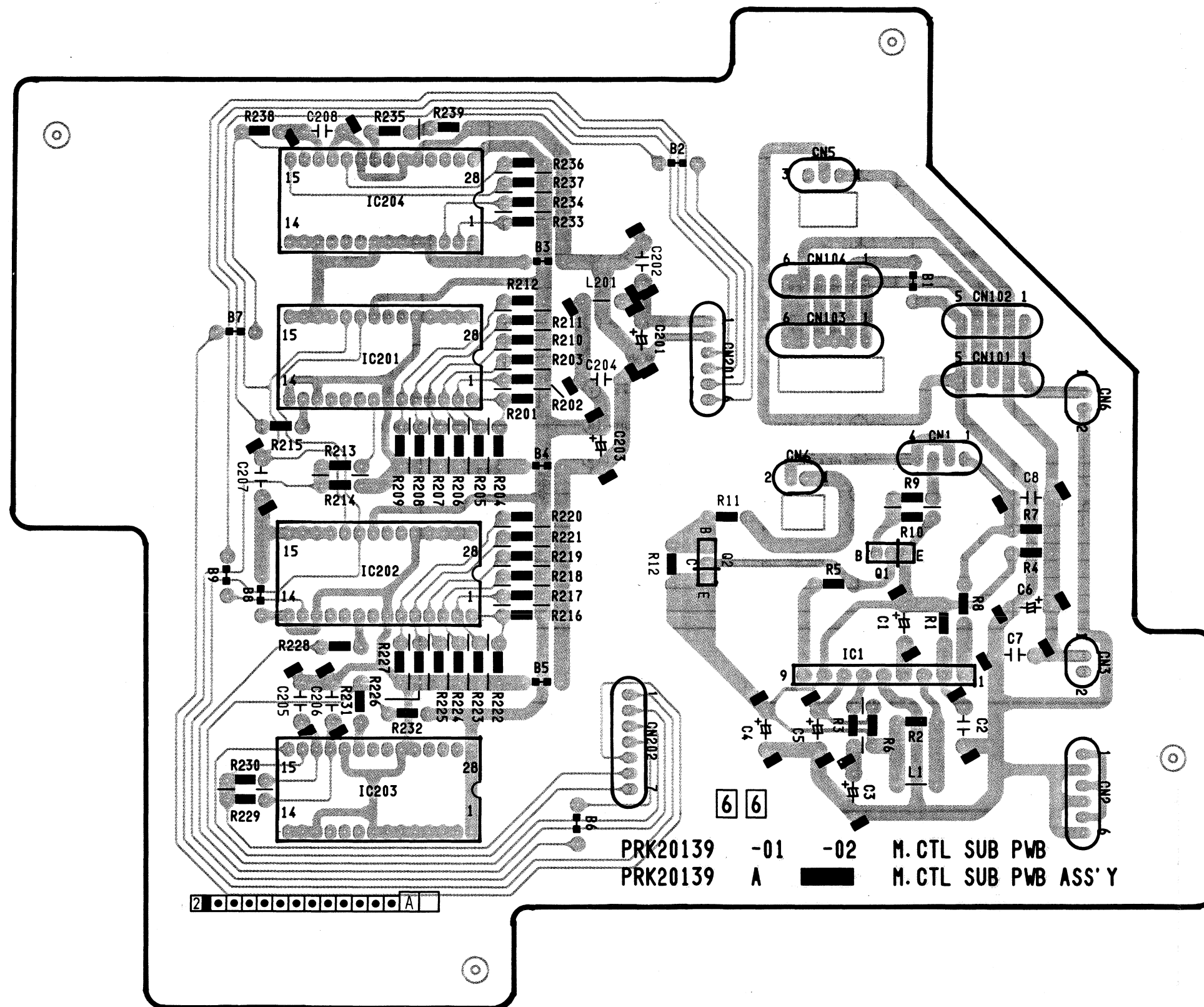
# 4.21 MECHACON SUB SCHEMATIC DIAGRAM



## — MECHACON SUB Voltage —

SYMBOL No.	REC	PB	SYMBOL No.	REC	PB
INTEGRATED CIRCUIT			TRANSISTOR		
IC1	1	5.7	Q1	B	5.9
	2	5.9	Q2	B	5.9
	3	5.9			
	4	5.9			
	5	5.9			
	6	5.9			
	7	5.9			
	8	5.9			
	9	5.9			
	10	5.9			
CONNECTOR					
IC203	1	5.1	CN1	1	5.8
	2	5.1		2	5.8
	3	5.1		3	5.8
	4	5.1		4	5.8
	5	5.1		5	5.8
	6	5.1		6	5.8
	7	5.1		7	5.8
	8	5.1		8	5.8
	9	5.1		9	5.8
	10	5.1		10	5.8
	11	5.1		11	5.8
	12	5.1		12	5.8
	13	5.1		13	5.8
	14	5.1		14	5.8
	15	5.1		15	5.8
	16	5.1		16	5.8
	17	5.1		17	5.8
	18	5.1		18	5.8
	19	5.1		19	5.8
	20	5.1		20	5.8
IC204	1	5.1	CN2	1	5.8
	2	5.1		2	5.8
	3	5.1		3	5.8
	4	5.1		4	5.8
	5	5.1		5	5.8
	6	5.1		6	5.8
	7	5.1		7	5.8
	8	5.1		8	5.8
	9	5.1		9	5.8
	10	5.1		10	5.8
	11	5.1		11	5.8
	12	5.1		12	5.8
	13	5.1		13	5.8
	14	5.1		14	5.8
	15	5.1		15	5.8
	16	5.1		16	5.8
	17	5.1		17	5.8
	18	5.1		18	5.8
	19	5.1		19	5.8
	20	5.1		20	5.8

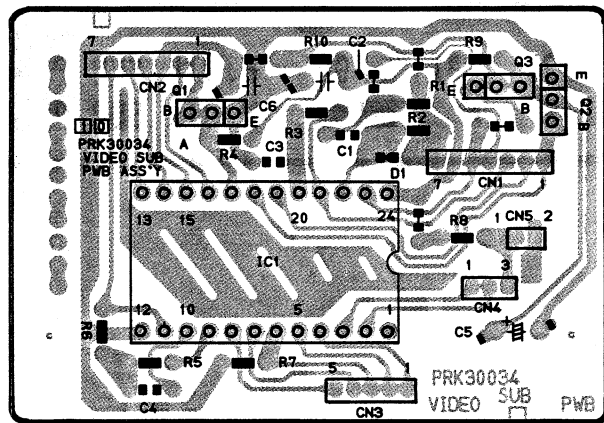
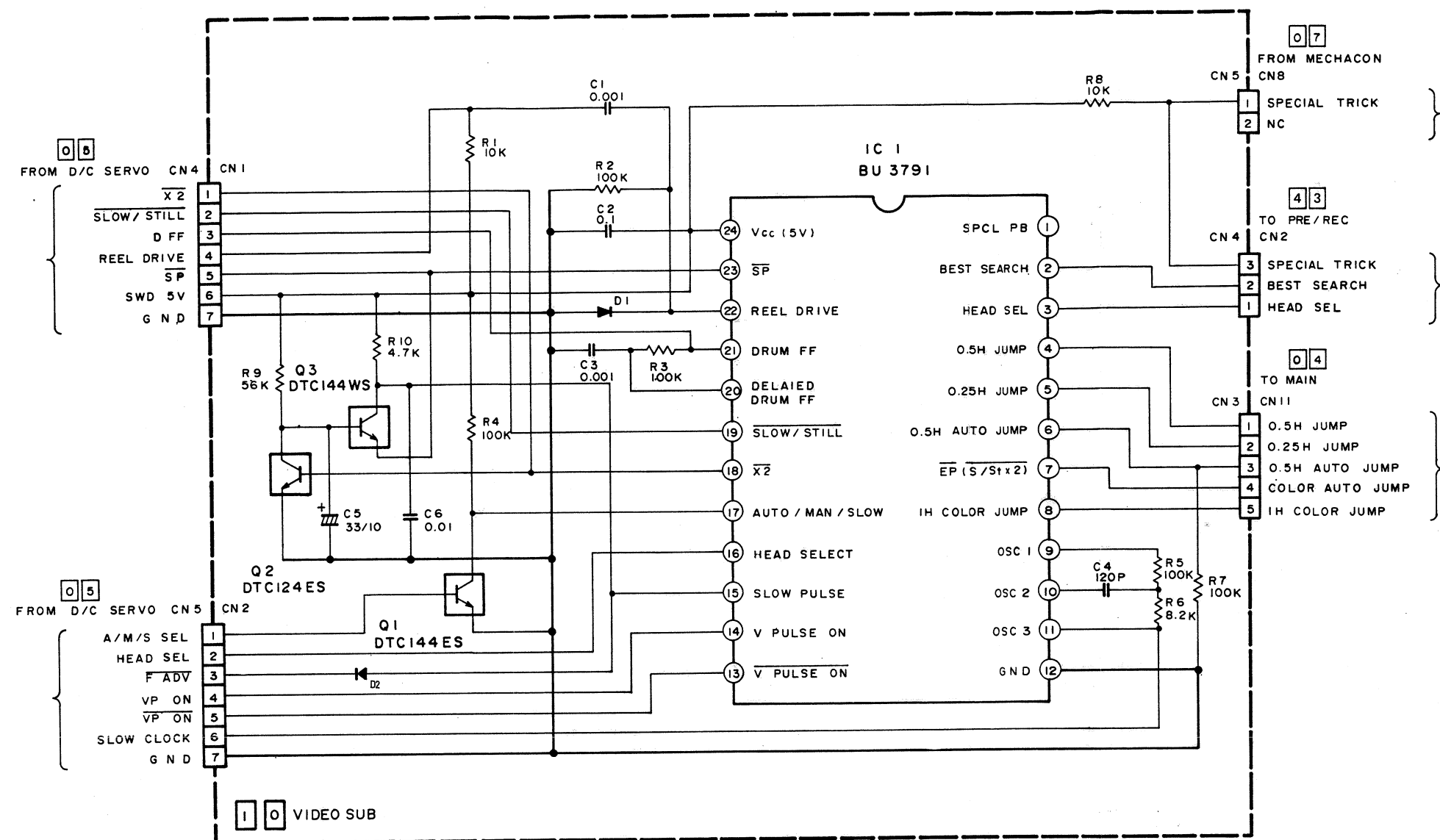
4.22 MECHACON SUB CIRCUIT BOARD



PRK20139 -01 -02 M. CTL SUB PWB  
 PRK20139 A M. CTL SUB PWB ASS'Y

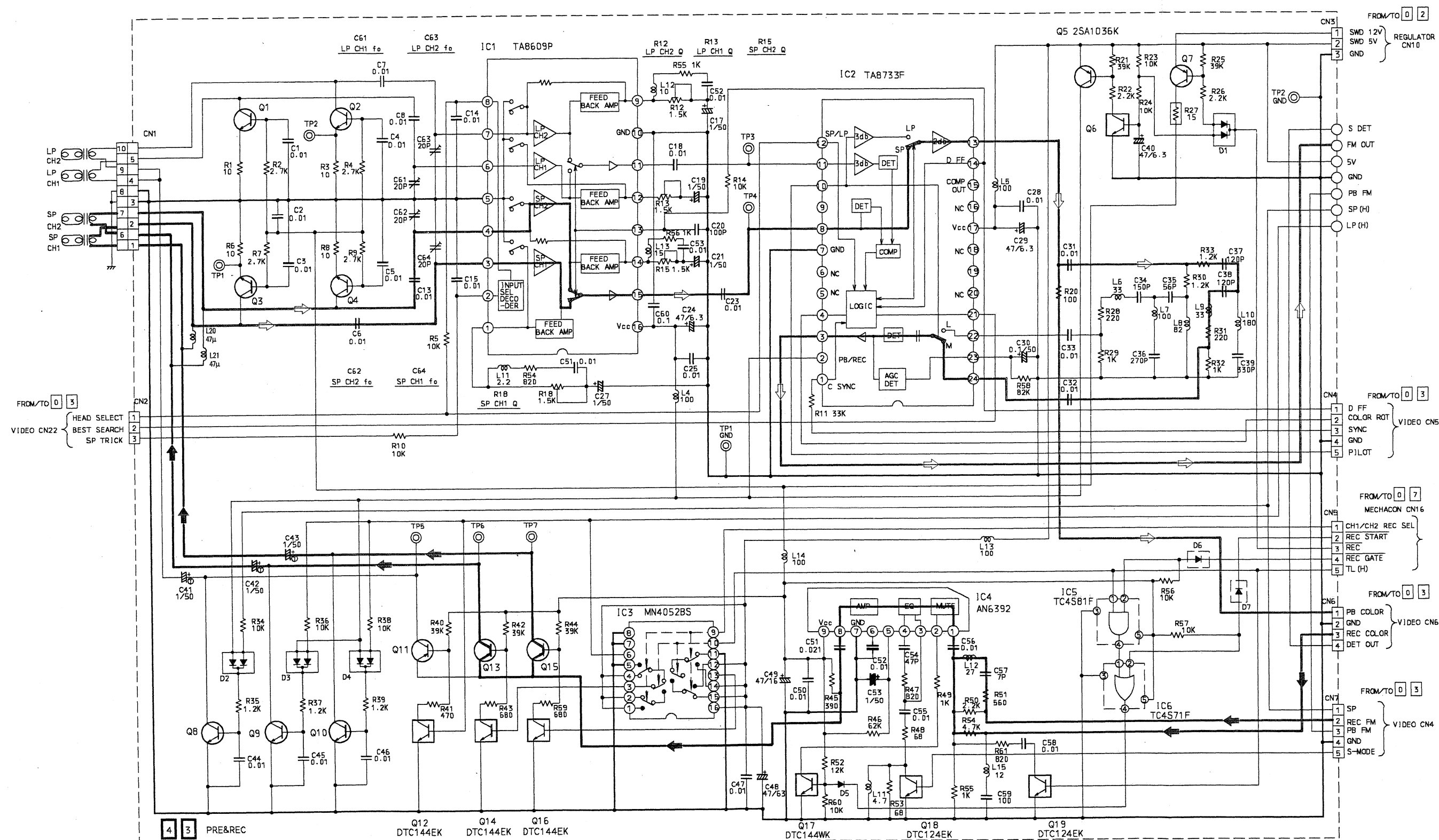


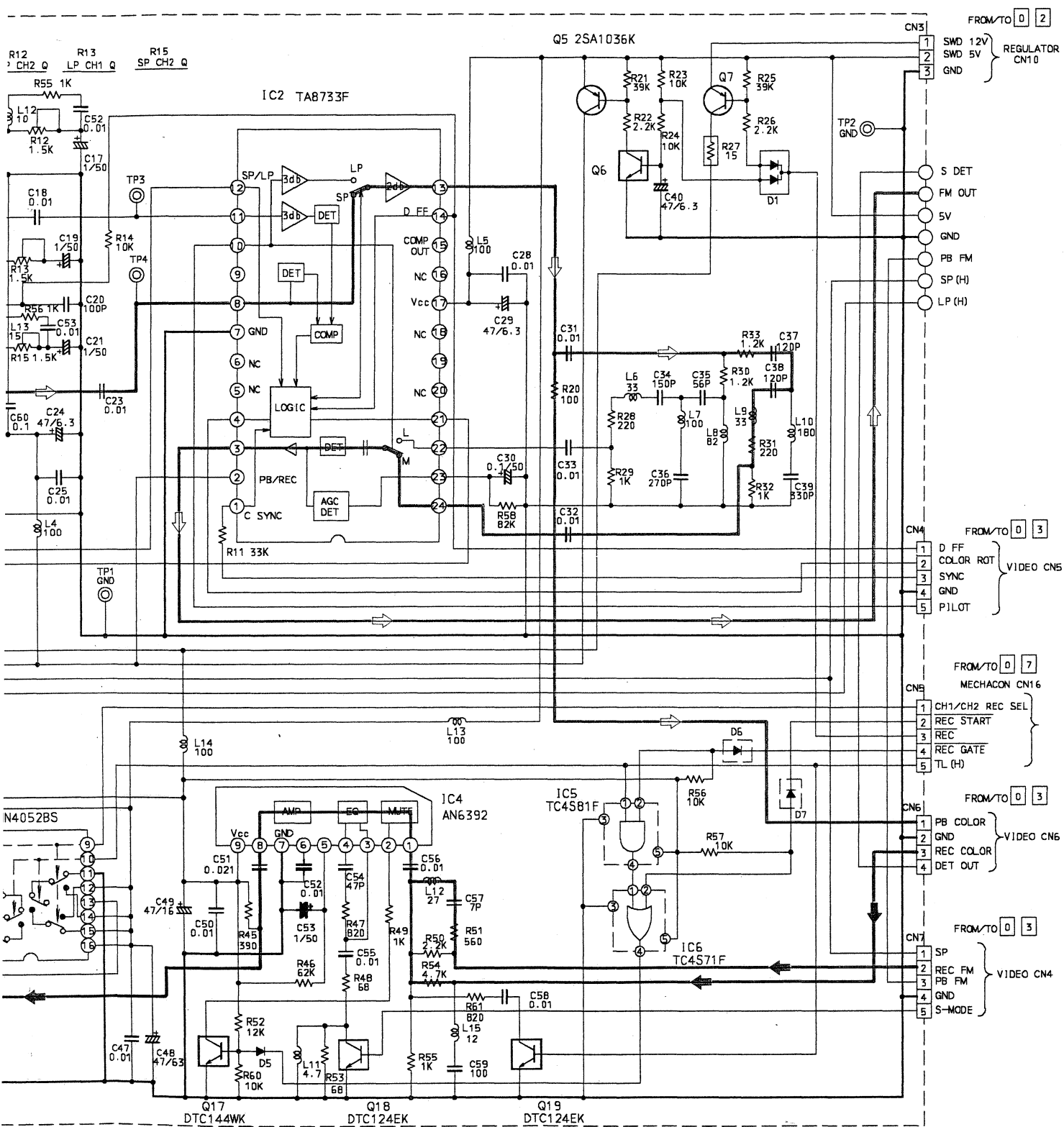
4.23 VIDEO SUB SCHEMATIC DIAGRAM & CIRCUIT BOARD



SYMBOL No.	REC	PB
INTEGRATED CIRCUIT		
IC1	1	0.0
	2	0.0
	3	0.0
	4	0.0
	5	0.0
	6	0.0
	7	0.0
	8	0.0
	9	0.0
	10	0.0
	11	0.0
	12	0.0
	13	0.0
	14	0.0
	15	0.0
	16	0.0
	17	0.0
	18	0.0
	19	0.0
	20	0.0
	21	0.0
	22	0.0
	23	0.0
	24	0.0
TRANSISTOR		
Q1	B	4.3
	C	0.0
	E	0.0
Q2	B	4.8
	C	0.0
	E	0.0
Q3	B	0.0
	C	5.0
	E	0.1
CONNECTOR		
CN1	1	4.8
	2	5.1
	3	5.0
	4	5.0
	5	0.0
	6	0.0
	7	0.0
CN2	1	4.3
	2	0.0
	3	5.1
	4	5.0
	5	5.0
	6	2.4
	7	0.0
CN3	1	4.9
	2	4.9
	3	0.0
	4	0.0
	5	5.0
CN4	1	0.0
	2	0.0
	3	0.0
CN5	1	0.0
	2	—

# 4.24 VIDEO PRE/REC SCHEMATIC DIAGRAM (1/2)





# — VIDEO PRE/REC Voltage —

SYMBOL No.		REC	PB	SYMBOL No.		REC	PB	SYMBOL No.		REC	PB	SYMBOL No.		REC	PB		
INTEGRATED CIRCUIT																	
IC1	1	0.0	0.0	1.0	0.0	Q2	B	0.8	0.0	Q105	B	4.1	4.1	CN5	1	5.1	
	2	0.0	0.0	0.7	0.0		C	0.0	0.0		C	0.6	0.6		2	5.1	
	3	0.0	0.0	0.3	0.0	Q3	B	0.8	0.0	Q106	B	4.7	4.7		3	5.1	
	4	0.0	0.0	0.3	0.0		C	0.0	0.0		C	5.3	5.3		4	5.1	
	5	0.0	0.0	0.3	0.0	Q4	B	0.8	0.0	Q107	B	4.1	4.1	CN6	1	4.4	
	6	0.0	0.0	0.3	0.0		C	0.0	0.0		C	5.3	5.3		2	0.0	
	7	0.0	0.0	0.3	0.0	Q5	B	0.8	0.0	Q108	B	2.7	2.7		3	0.0	
	8	0.0	0.0	0.3	0.0		C	0.0	0.0		C	2.1	2.1		4	0.0	
	9	0.0	0.0	0.3	0.0	Q6	B	5.3	4.6	Q109	B	3.2	3.2	CN7	1	5.2	
	10	0.0	0.0	0.3	0.0		C	5.3	5.3		C	3.8	3.8		2	3.8	
	11	0.0	0.0	0.3	0.0	Q7	B	0.7	3.1	Q110	B	3.2	3.2		3	3.8	
	12	0.0	0.0	0.3	0.0		C	5.3	0.0		C	3.2	3.2		4	0.0	
	IC2	1	0.9	0.9	0.9	0.9	Q8	B	11.6	12.3	Q111	B	1.8	1.8			
		2	0.4	0.4	2.2	2.2		C	12.3	12.4		C	0.0	0.0			
		3	0.4	0.4	0.0	0.0	Q9	B	0.7	0.7	Q112	B	0.0	0.0			
		4	0.4	0.4	0.0	0.0		C	0.0	0.0		C	0.0	0.0			
5		0.4	0.4	0.0	0.0	Q10	B	0.7	0.7	Q113	B	0.0	0.0				
6		0.4	0.4	0.0	0.0		C	0.0	0.0		C	0.0	0.0				
7		0.4	0.4	0.0	0.0	Q11	B	0.4	0.7	Q114	B	2.4	2.4				
8		0.4	0.4	0.0	0.0		C	0.0	0.0		C	5.3	5.3				
9		0.4	0.4	0.0	0.0	Q12	B	0.4	0.7	Q115	B	2.0	2.0				
10		0.4	0.4	0.0	0.0		C	0.0	0.0		C	2.9	2.9				
11		0.4	0.4	0.0	0.0	Q13	B	10.2	0.0	Q116	B	3.6	3.6				
12		0.4	0.4	0.0	0.0		C	4.5	0.0		C	2.9	2.9				
13		0.4	0.4	0.0	0.0	Q14	B	0.0	0.0	Q117	B	0.6	0.6				
14		0.4	0.4	0.0	0.0		C	0.0	0.0		C	1.3	1.3				
15		0.4	0.4	0.0	0.0	Q15	B	10.2	0.0	Q118	B	0.0	0.0				
16		0.4	0.4	0.0	0.0		C	0.0	0.0		C	0.6	0.6				
IC3	1	5.3	5.3	5.3	5.3	Q16	B	3.7	0.0	Q119	B	1.3	1.3				
	2	5.3	5.3	5.3	5.3		C	4.5	0.0		C	3.5	3.5				
	3	5.3	5.3	5.3	5.3	Q17	B	5.3	5.3	Q120	B	0.6	0.6				
	4	5.3	5.3	5.3	5.3		C	0.0	0.0		C	0.6	0.6				
	5	5.3	5.3	5.3	5.3	Q18	B	5.3	5.3	Q121	B	0.6	0.6				
	6	5.3	5.3	5.3	5.3		C	0.0	0.0		C	0.6	0.6				
	7	5.3	5.3	5.3	5.3	Q19	B	5.3	5.3	Q122	B	0.6	0.6				
	8	5.3	5.3	5.3	5.3		C	0.0	0.0		C	0.6	0.6				
	9	5.3	5.3	5.3	5.3	Q20	B	5.3	5.3	Q123	B	0.6	0.6				
	10	5.3	5.3	5.3	5.3		C	0.0	0.0		C	0.6	0.6				
	11	5.3	5.3	5.3	5.3	Q21	B	5.3	5.3	Q124	B	0.6	0.6				
	12	5.3	5.3	5.3	5.3		C	0.0	0.0		C	0.6	0.6				
	13	5.3	5.3	5.3	5.3	Q22	B	5.3	5.3	Q125	B	0.6	0.6				
	14	5.3	5.3	5.3	5.3		C	0.0	0.0		C	0.6	0.6				
	15	5.3	5.3	5.3	5.3	Q23	B	5.3	5.3	Q126	B	0.6	0.6				
	16	5.3	5.3	5.3	5.3		C	0.0	0.0		C	0.6	0.6				
IC4	1	5.6	0.1	0.1	0.1	Q24	B	0.8	0.0	CONNECTOR							
	2	1.1	0.0	0.0	0.0		C	11.5	0.0	CN1	1	0.0	0.0				
	3	5.6	0.0	0.0	0.0	Q25	B	0.0	0.0		2	0.0	0.0				
	4	5.6	0.0	0.0	0.0		C	0.0	0.0		3	0.0	0.0				
	5	5.6	0.0	0.0	0.0	Q26	B	0.0	0.0		4	0.0	0.0				
	6	5.6	0.0	0.0	0.0		C	0.0	0.0	5	0.0	0.0					
	7	5.6	0.0	0.0	0.0	Q27	B	0.0	0.0	6	0.0	0.0					
	8	5.6	0.0	0.0	0.0		C	0.0	0.0	7	0.0	0.0					
	9	5.6	0.0	0.0	0.0	Q28	B	0.0	0.0	8	0.0	0.0					
	10	5.6	0.0	0.0	0.0		C	0.0	0.0	9	0.0	0.0					
	11	5.6	0.0	0.0	0.0	Q29	B	0.0	0.0	CN2	1	0.0	0.0				
	12	5.6	0.0	0.0	0.0		C	0.0	0.0		2	0.0	0.0				
	13	5.6	0.0	0.0	0.0	Q30	B	0.0	0.0		3	0.0	0.0				
	14	5.6	0.0	0.0	0.0		C	0.0	0.0		4	0.0	0.0				
	IC5	1	0.0	0.0	0.0	0.0	Q31	B	0.0	0.0	CN3	1	12.4	12.4			
		2	0.0	0.0	0.0	0.0		C	5.2	5.2		2	5.3	5.3			
3		0.0	0.0	0.0	0.0	Q32	B	5.2	5.2	3		0.0	0.0				
4		0.0	0.0	0.0	0.0		C	0.0	0.0	4		0.0	0.0				
5		0.0	0.0	0.0	0.0	Q33	B	5.2	5.2	CN4	1	0.0	0.0				
6		0.0	0.0	0.0	0.0		C	0.0	0.0		2	0.0	0.0				
7		0.0	0.0	0.0	0.0	Q34	B	5.2	5.2		3	1.5	0.6				
8		0.0	0.0	0.0	0.0		C	0.0	0.0		4	0.0	0.0				
IC6		1	0.0	0.0	0.0	0.0	Q35	B	2.7	2.7							
		2	0.0	0.0	0.0	0.0		C	4.1	4.1							
		3	0.0	0.0	0.0	0.0	Q36	B	2.1	2.1							
		4	0.0	0.0	0.0	0.0		C	2.1	2.1							
		5	0.0	0.0	0.0	0.0	Q37	B	0.0	0.0							
		6	0.0	0.0	0.0	0.0		C	0.0	0.0							
		7	0.0	0.0	0.0	0.0	Q38	B	0.0	0.0							
		8	0.0	0.0	0.0	0.0		C	0.0	0.0							
	9	0.0	0.0	0.0	0.0	Q39	B	0.0	0.0								
	10	0.0	0.0	0.0	0.0		C	0.0	0.0								
	11	0.0	0.0	0.0	0.0	Q40	B	0.0	0.0								
	12	0.0	0.0	0.0	0.0		C	0.0	0.0								
	13	0.0	0.0	0.0	0.0	Q41	B	0.0	0.0								
	14	0.0	0.0	0.0	0.0		C	0.0	0.0								
	15	0.0	0.0	0.0	0.0	Q42	B	0.0	0.0								
	16	0.0	0.0	0.0	0.0		C	0.0	0.0								
TRANSISTOR																	
Q1	B	0.8	0.0	0.0	0.0	Q43	B	0.0	0.0								
	C	0.0	0.0	0.0	0.0		C	0.0	0.0								
	E	0.0	0.0	0.0	0.0		E	0.0	0.0								

## 4



2



4-30

E

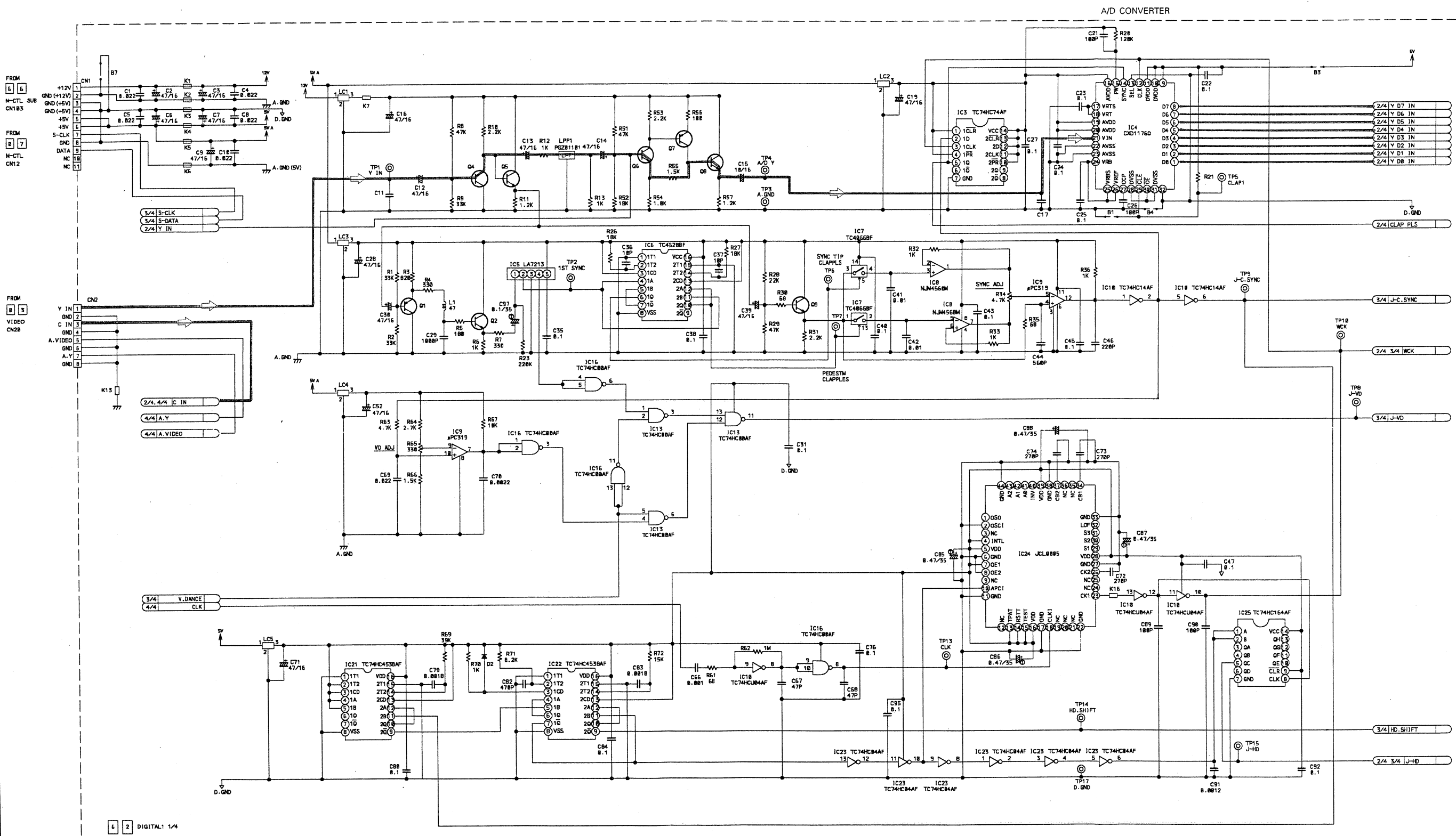
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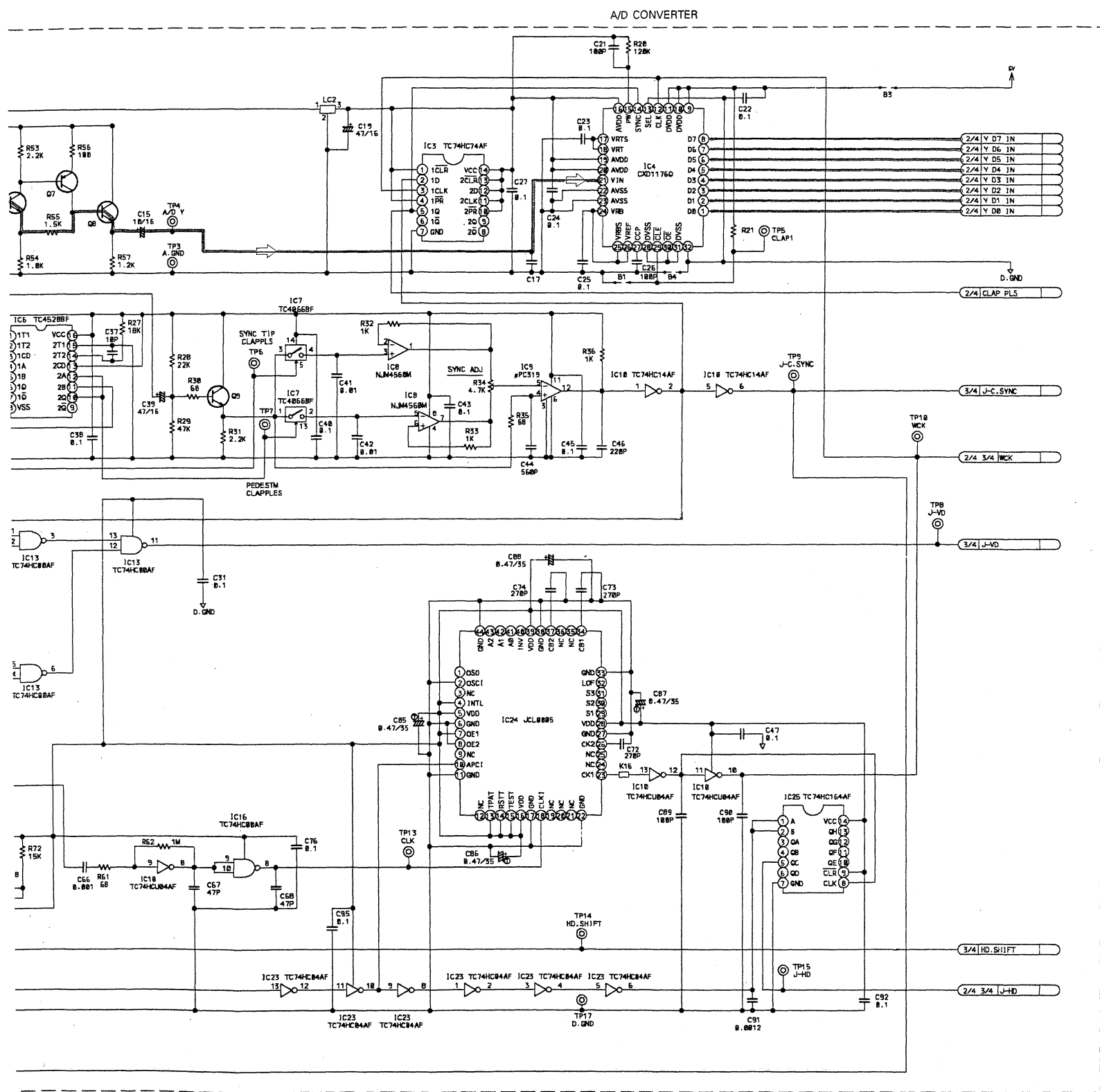
**G**

H



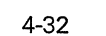
4.26 DIGITAL-1 SCHEMATIC DIAGRAM (1/4)





— DIGITAL-1 Voltage (1/3) —

SYMBOL No.	RBC	PB	SYMBOL No.	RBC	PB	SYMBOL No.	RBC	PB	SYMBOL No.	RBC	PB
INTEGRATED CIRCUIT											
IC3	1 2 3 4 5 6 7 8 9 10 11 12 13 14	1 2 3 4 5 6 7 8 9 10 11 12 13 14	IC8	1 2 3 4 5 6 7 8 9 10 11 12 13 14	1 2 3 4 5 6 7 8 9 10 11 12 13 14	IC22	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	IC25	1 2 3 4 5 6 7 8 9 10 11 12 13 14	1 2 3 4 5 6 7 8 9 10 11 12 13 14
IC4	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32	IC9	1 2 3 4 5 6 7 8 9 10 11 12 13 14	1 2 3 4 5 6 7 8 9 10 11 12 13 14	IC23	1 2 3 4 5 6 7 8 9 10 11 12 13 14	1 2 3 4 5 6 7 8 9 10 11 12 13 14	IC102	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
IC5	1 2 3 4 5	1 2 3 4 5	IC13	1 2 3 4 5 6 7 8 9 10 11 12 13 14	1 2 3 4 5 6 7 8 9 10 11 12 13 14	IC24	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32	IC103	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
IC6	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	IC16	1 2 3 4 5 6 7 8 9 10 11 12 13 14	1 2 3 4 5 6 7 8 9 10 11 12 13 14	IC21	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	IC105	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
IC7	1 2 3 4 5 6 7 8 9 10 11 12 13 14	1 2 3 4 5 6 7 8 9 10 11 12 13 14									

4-32



**B**

C

4-32

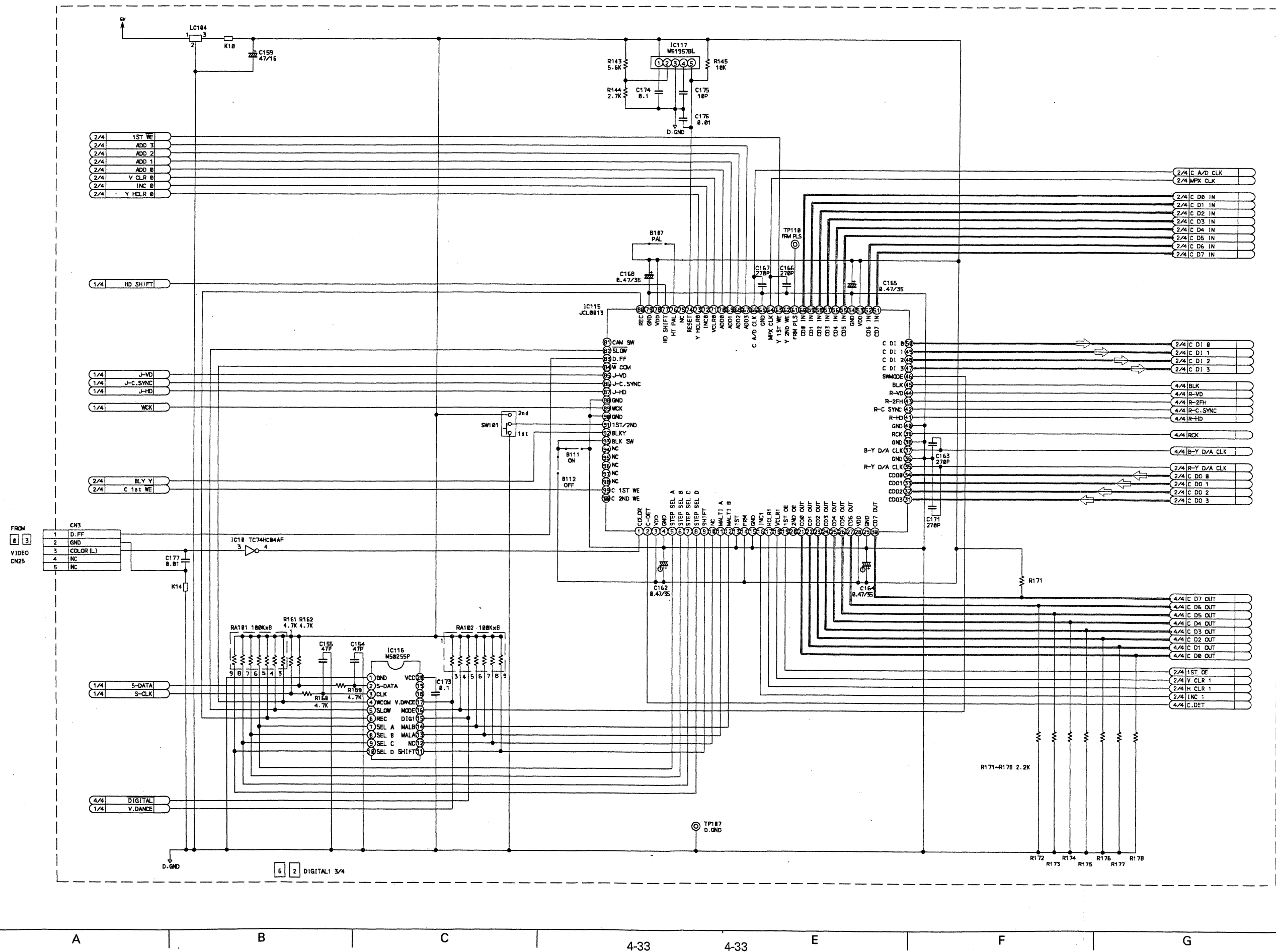
4-32

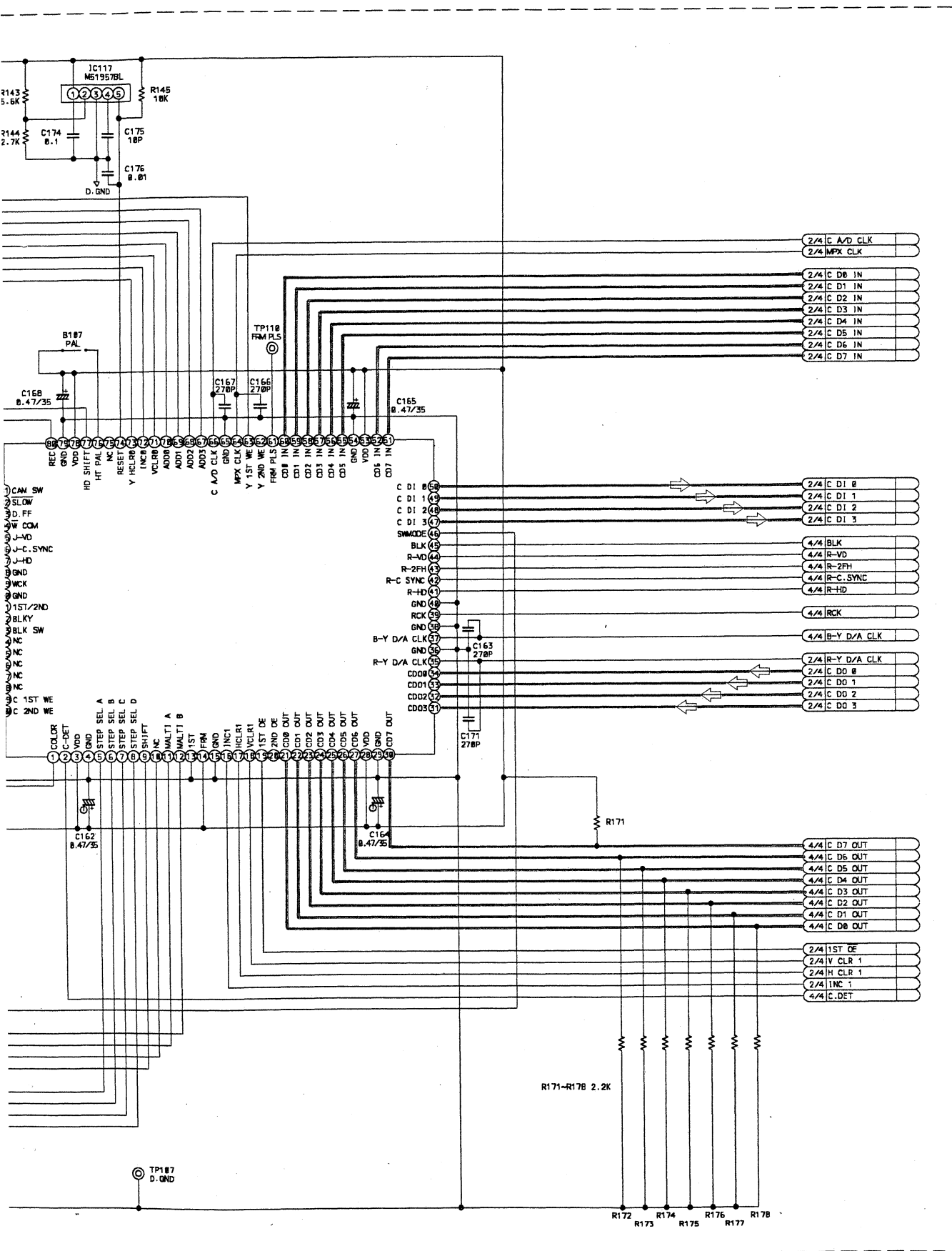
**E**

F

①

**F**





# — DIGITAL-1 Voltage (3/3) —

SYMBOL No.	REC	PB	SYMBOL No.	REC	PB	SYMBOL No.	REC	PB	SYMBOL No.	REC	PB
IC203	15 16 17 18 19 20 21 22 23 24	5.3 4.2 5.1 5.4 0.0 0.0 0.0 0.0 0.0	5.3 4.2 5.1 5.4 0.0 0.0 0.0 0.0 0.0	IC213	1 2 3 4 5 6 7 8 9 10 11 12 13 14	5.3 4.2 5.1 5.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	5.3 4.2 5.1 5.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	CONNECTOR		TRANSISTOR	
									CN1	1 2 3 4 5 6 7 8 9 10 11	12.4 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1
											12.4 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1
											11.5 4.8 12.2 4.8 12.4 4.1
											4.5 0.1 5.3 4.5 0.1 5.3
											4.5 0.1 5.3 4.5 0.1 5.3
											6.1 12.4 5.5 6.1 12.4 5.5
											4.1 6.4 3.5 4.1 6.4 3.5
											6.4 12.4 5.8 6.4 12.4 5.8
											5.8 12.4 5.1 5.8 12.4 5.1
											5.1 11.4 4.4 5.1 11.4 4.4
											1.8 4.4 1.1 1.8 4.4 1.1
											4.3 12.4 3.7 4.3 12.4 3.7
											3.2 8.6 2.5 3.2 8.6 2.5
											8.6 12.4 7.9 8.6 12.4 7.9
											4.8 0.1 5.5 4.8 0.1 5.5
											4.8 0.1 5.6 4.8 0.1 5.6
											5.3 0.1 0.1 5.3 0.1 0.1
											5.3 0.1 0.1 5.3 0.1 0.1
											2.6 3.8 1.9 2.6 3.8 1.9
											3.8 12.4 3.1 3.8 12.4 3.1
											0.1 0.1 5.3 0.1 0.1 5.3
											6.6 12.4 5.9 6.6 12.4 5.9
											6.6 12.4 5.9 6.6 12.4 5.9
											6.6 12.4 6.0 6.6 12.4 6.0



## 5



3

2

1

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**B**

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C

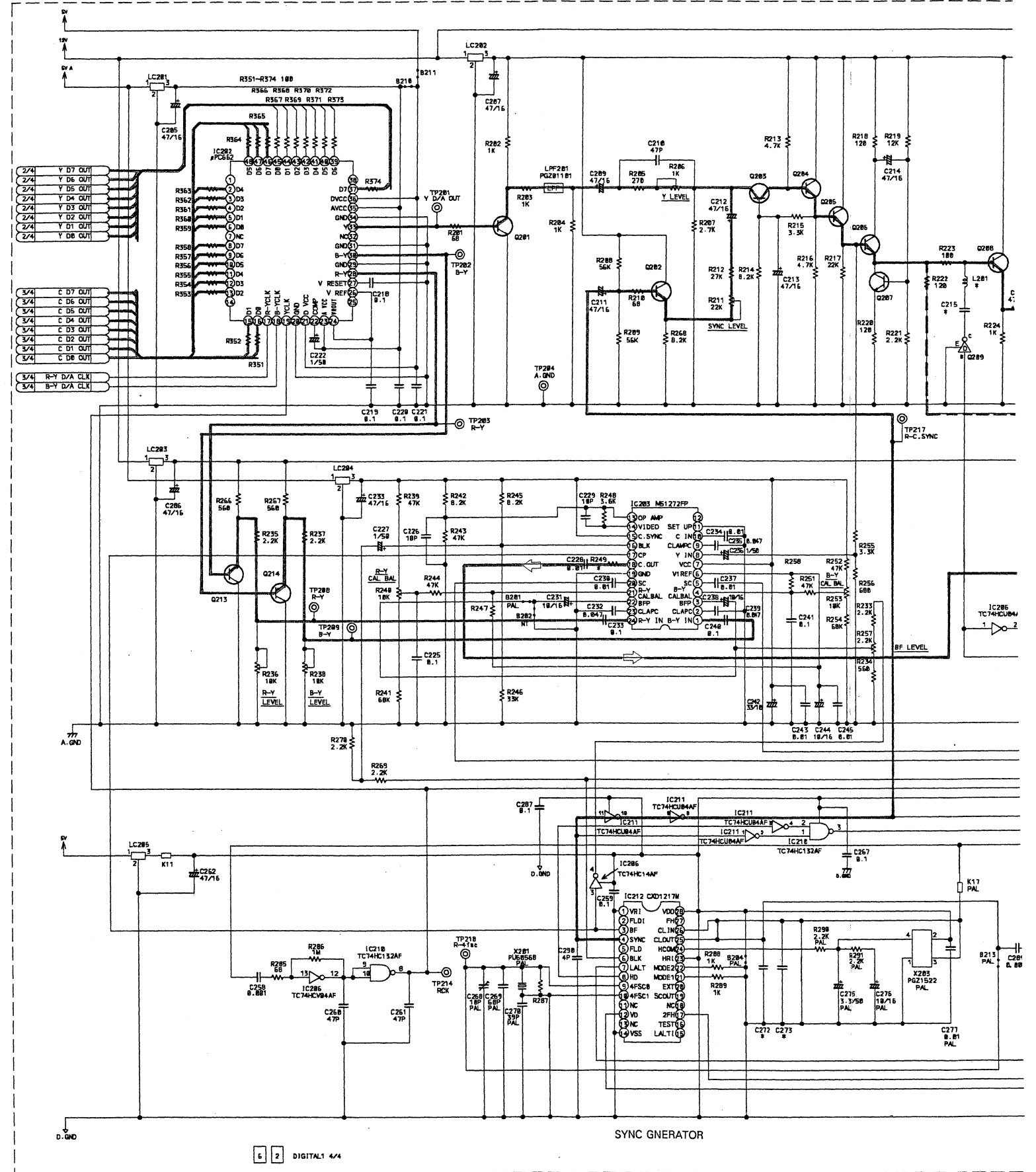
4-34

F

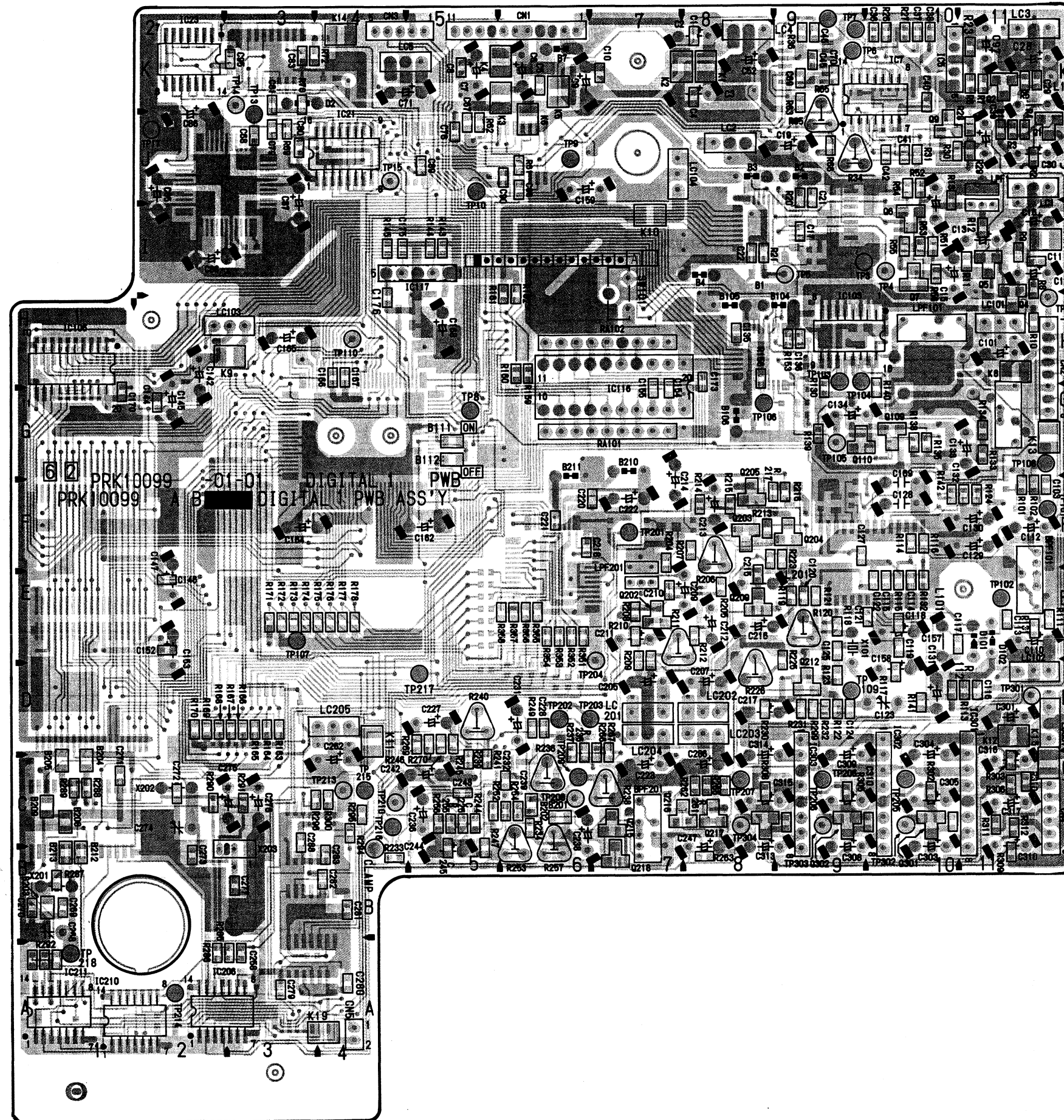
**E**

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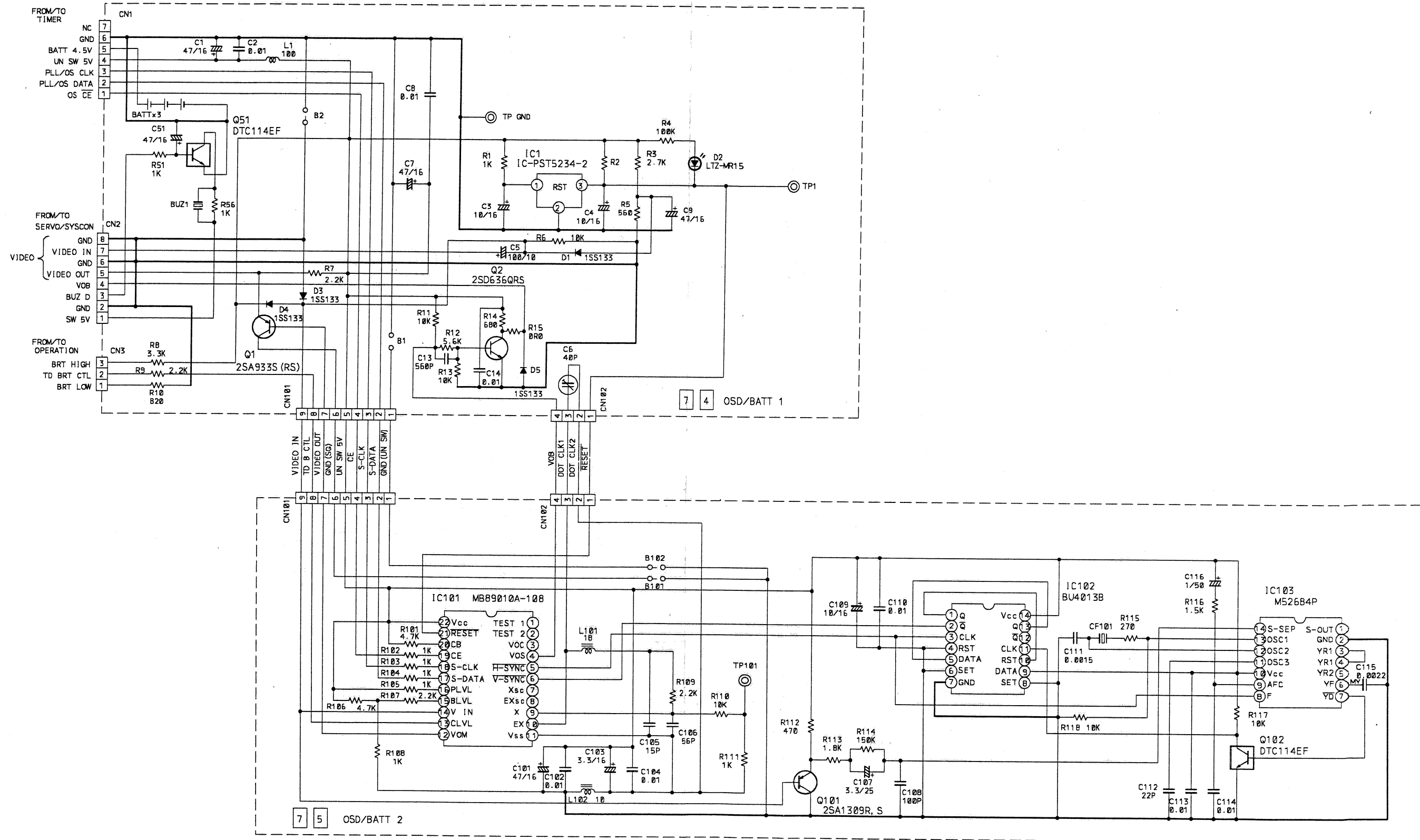




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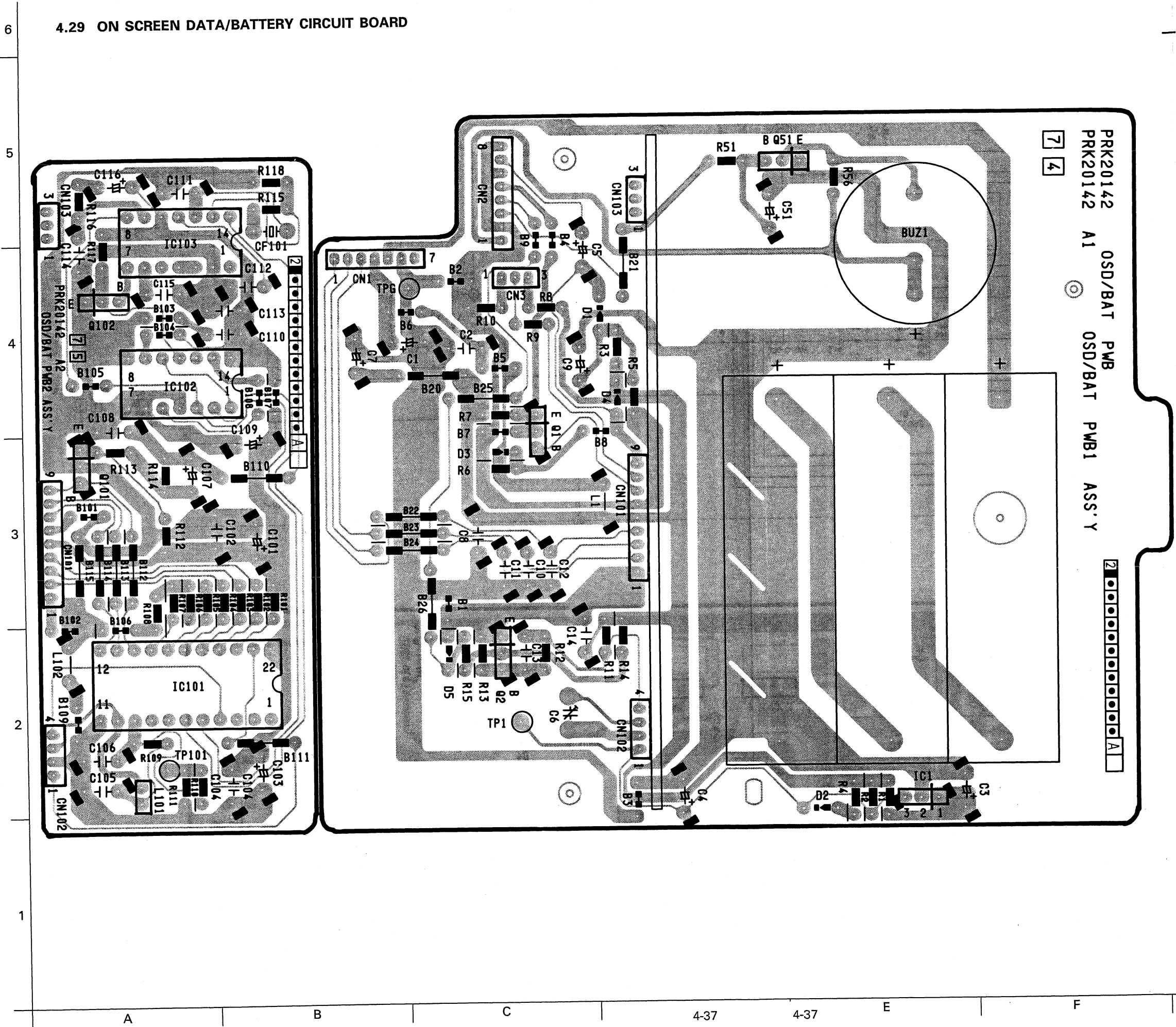
H

## 4.28 ON SCREEN DATA/BATTERY SCHEMATIC DIAGRAM



4.29 ON SCREEN DATA/BATTERY CIRCUIT BOARD

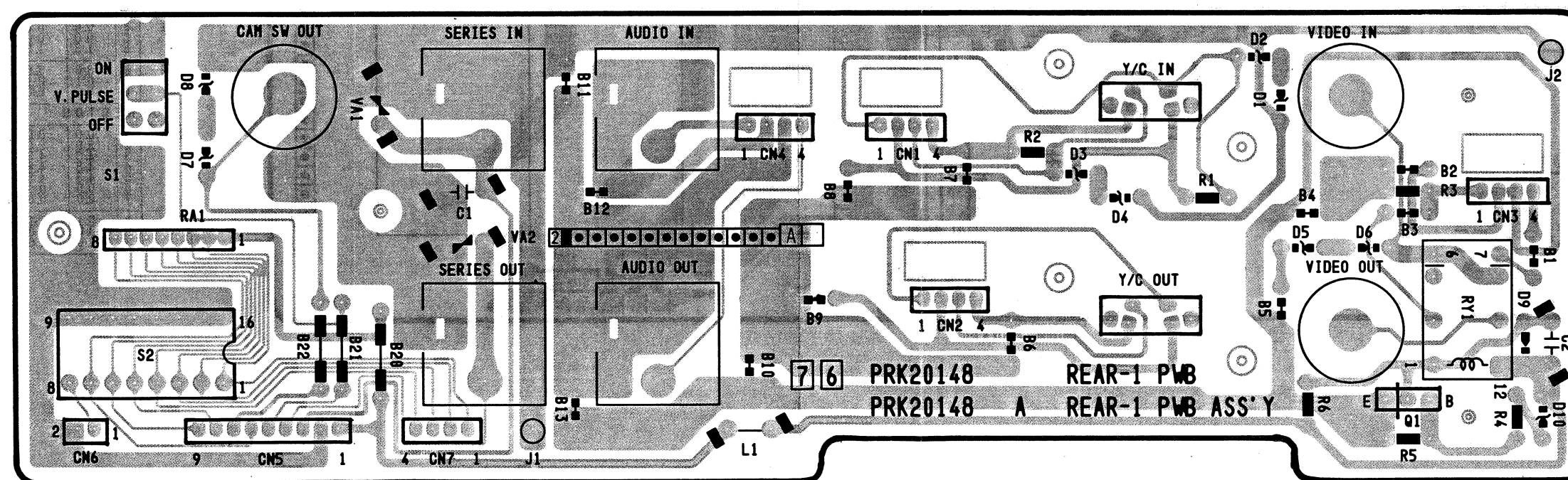
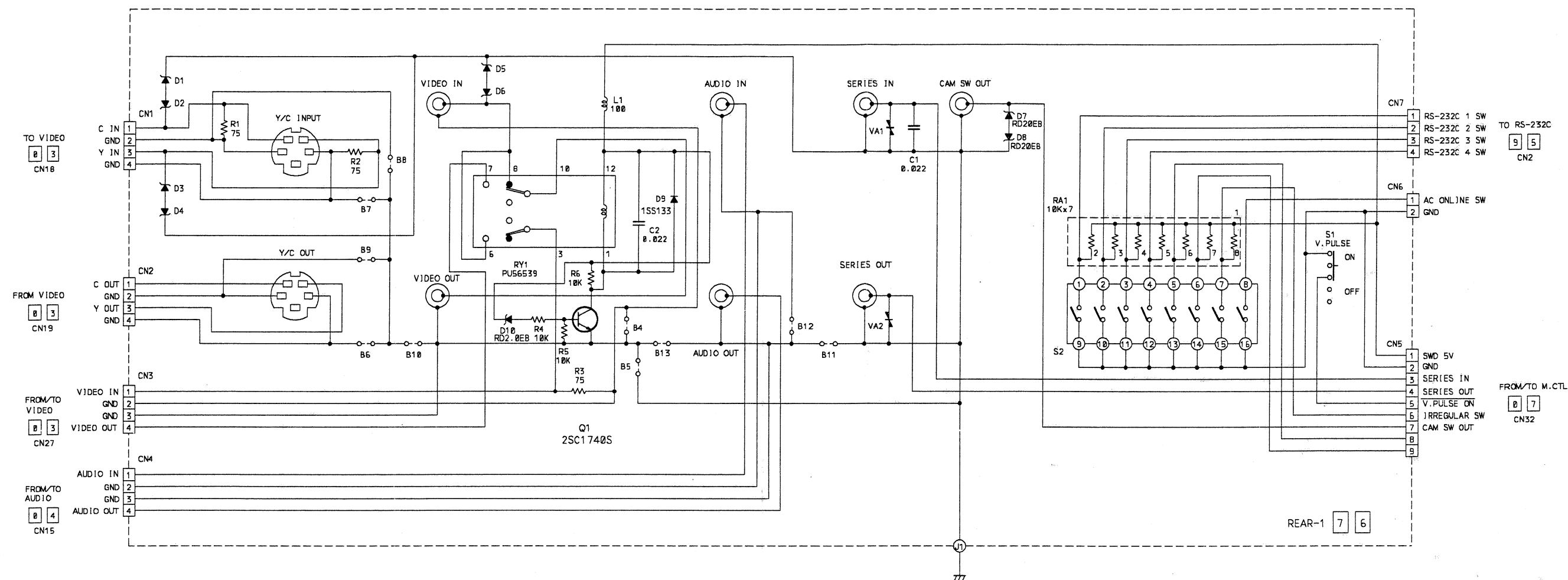
— ON SCREEN DATA/BATTERY Voltage —



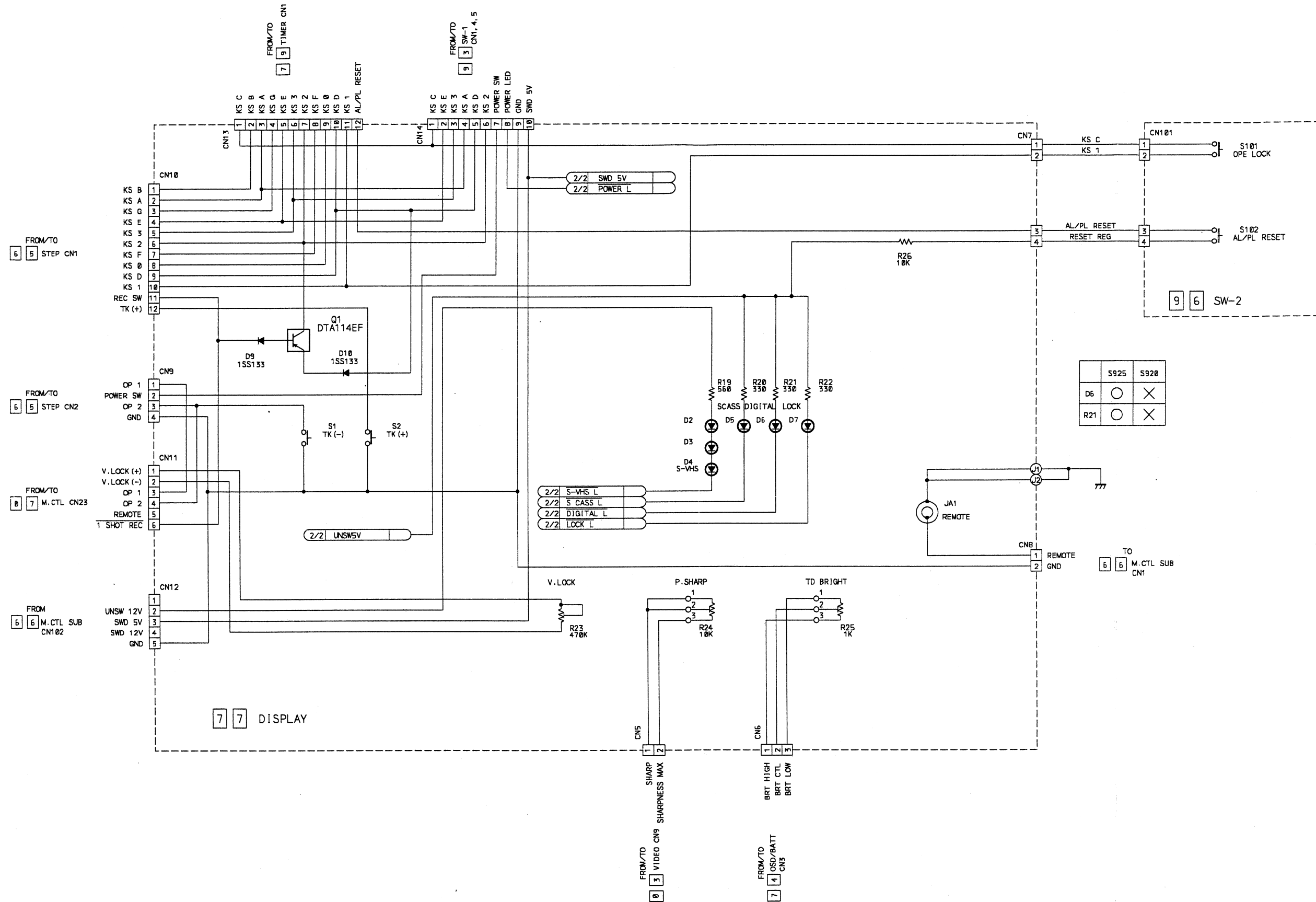
SYMBOL No.	REC	PB	SYMBOL No.	REC	PB
INTEGRATED CIRCUIT			CN2	4	0.0
IC1	1	4.4	8	0.0	0.0
	3	4.4		0.0	0.0
IC101	1	4.0	CN3	1	0.0
	2	4.0		1.4	1.4
	3	4.0	CN101	1	0.0
	4	4.0		0.0	0.0
	5	4.0		0.0	0.0
	6	4.0		0.0	0.0
	7	4.0		0.0	0.0
	8	4.0		0.0	0.0
	9	4.0		0.0	0.0
	10	4.0		0.0	0.0
	11	4.0		0.0	0.0
	12	4.0		0.0	0.0
	13	4.0		0.0	0.0
	14	4.0		0.0	0.0
	15	4.0		0.0	0.0
	16	4.0		0.0	0.0
	17	4.0		0.0	0.0
	18	4.0		0.0	0.0
	19	4.0		0.0	0.0
	20	4.0		0.0	0.0
	21	4.0		0.0	0.0
	22	4.0		0.0	0.0
IC102	1	0.0			
	2	0.0			
	3	0.0			
	4	0.0			
	5	0.0			
	6	0.0			
	7	0.0			
	8	0.0			
	9	0.0			
	10	0.0			
	11	0.0			
	12	0.0			
	13	0.0			
	14	0.0			
	15	0.0			
	16	0.0			
	17	0.0			
	18	0.0			
	19	0.0			
	20	0.0			
	21	0.0			
	22	0.0			
IC103	1	0.0			
	2	0.0			
	3	0.0			
	4	0.0			
	5	0.0			
	6	0.0			
	7	0.0			
	8	0.0			
	9	0.0			
	10	0.0			
	11	0.0			
	12	0.0			
	13	0.0			
	14	0.0			
	15	0.0			
	16	0.0			
	17	0.0			
	18	0.0			
	19	0.0			
	20	0.0			
	21	0.0			
	22	0.0			
TRANSISTOR					
Q1	1	0.0			
	2	0.0			
	3	0.0			
Q51	1	0.0			
	2	0.0			
	3	0.0			
Q101	1	0.0			
	2	0.0			
	3	0.0			
Q102	1	0.0			
	2	0.0			
	3	0.0			
CONNECTOR					
CN1	1	0.0			
	2	0.0			
	3	0.0			
	4	0.0			
	5	0.0			
	6	0.0			
	7	0.0			
	8	0.0			
	9	0.0			
	10	0.0			
	11	0.0			
	12	0.0			
	13	0.0			
	14	0.0			
	15	0.0			
	16	0.0			
	17	0.0			
	18	0.0			
	19	0.0			
	20	0.0			
	21	0.0			
	22	0.0			
CN2	1	5.1			
	2	0.0			
	3	0.0			
	4	0.0			
	5	0.0			
	6	0.0			
	7	0.0			
	8	0.0			
	9	0.0			
	10	0.0			
	11	0.0			
	12	0.0			
	13	0.0			
	14	0.0			
	15	0.0			
	16	0.0			
	17	0.0			
	18	0.0			
	19	0.0			
	20	0.0			
	21	0.0			
	22	0.0			



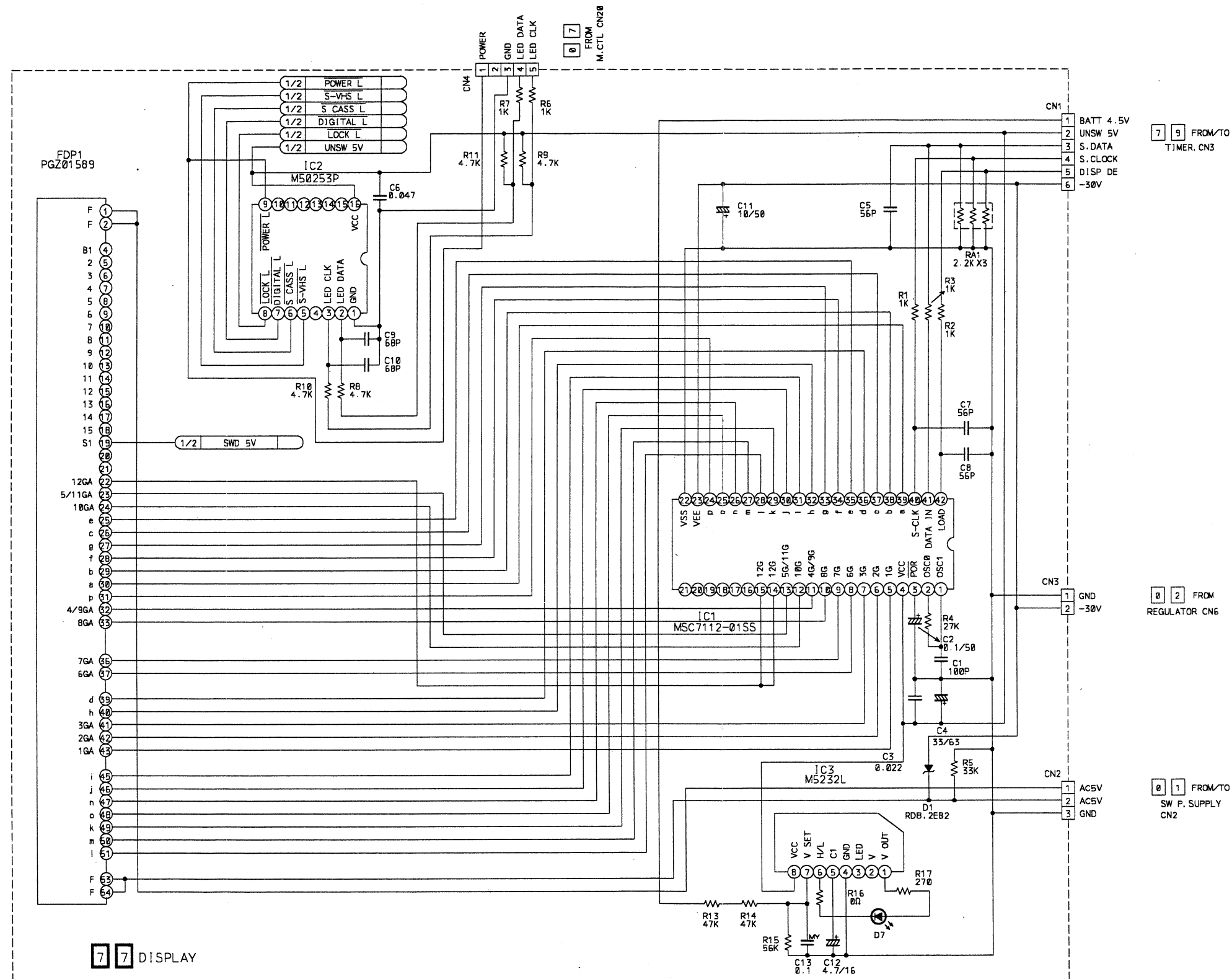
#### 4.30 REAR-1 SCHEMATIC DIAGRAM & CIRCUIT BOARD



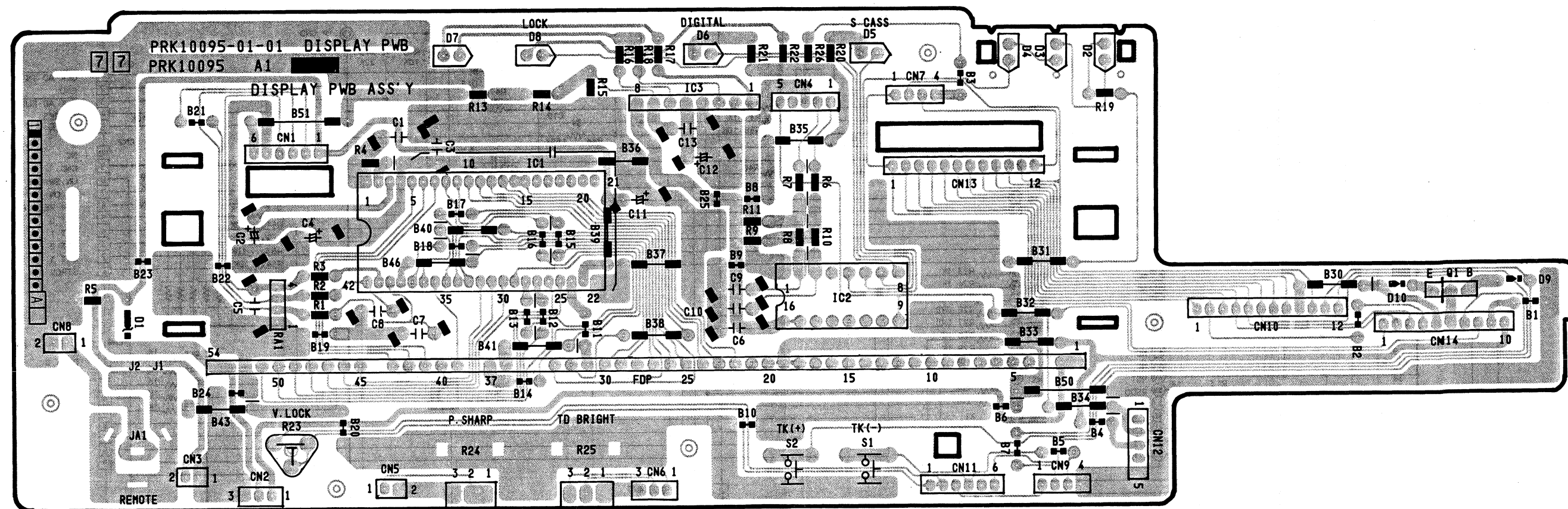
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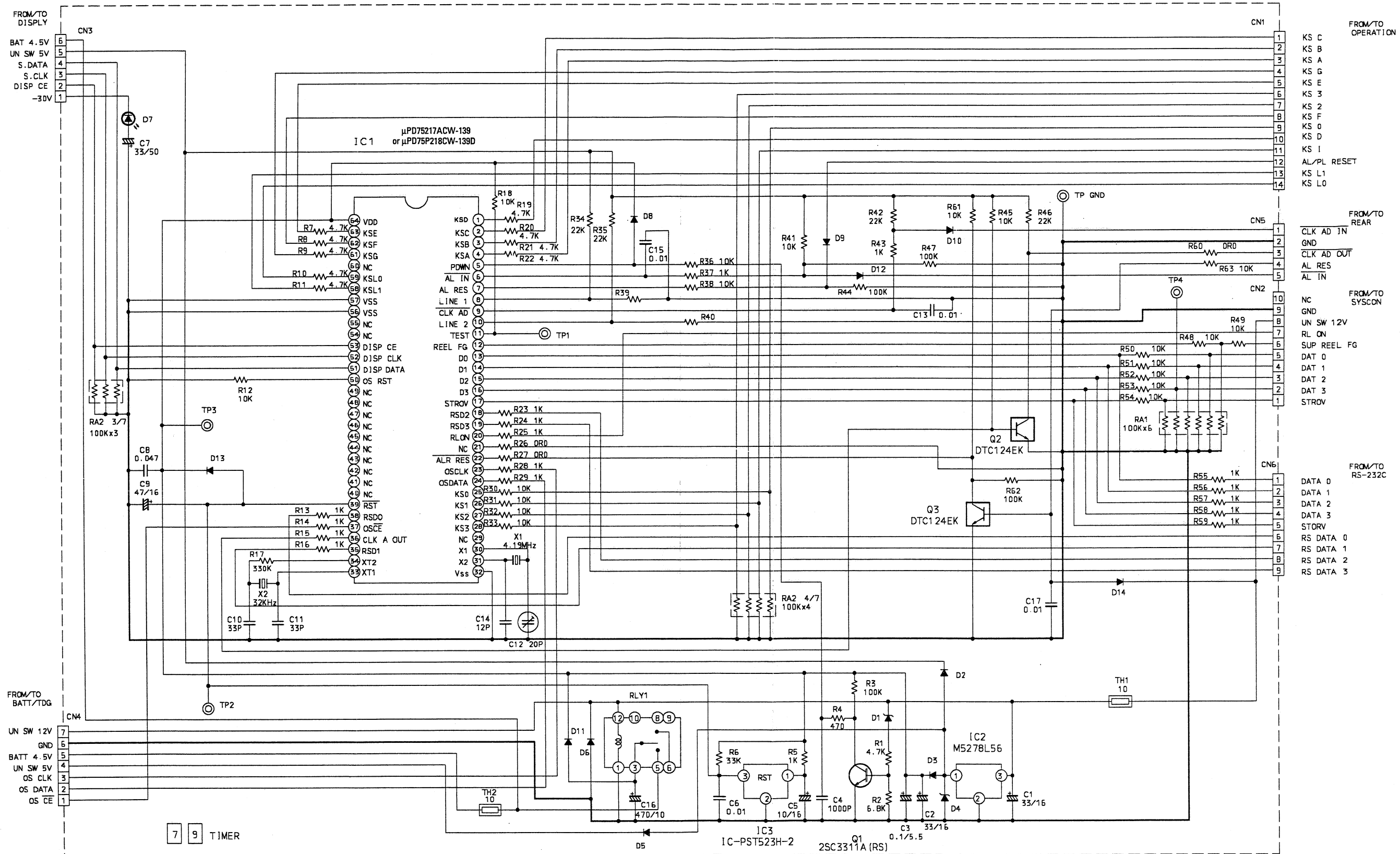
— DISPLAY SCHEMATIC DIAGRAM (2/2) —



# 4.32 DISPLAY CIRCUIT BOARD

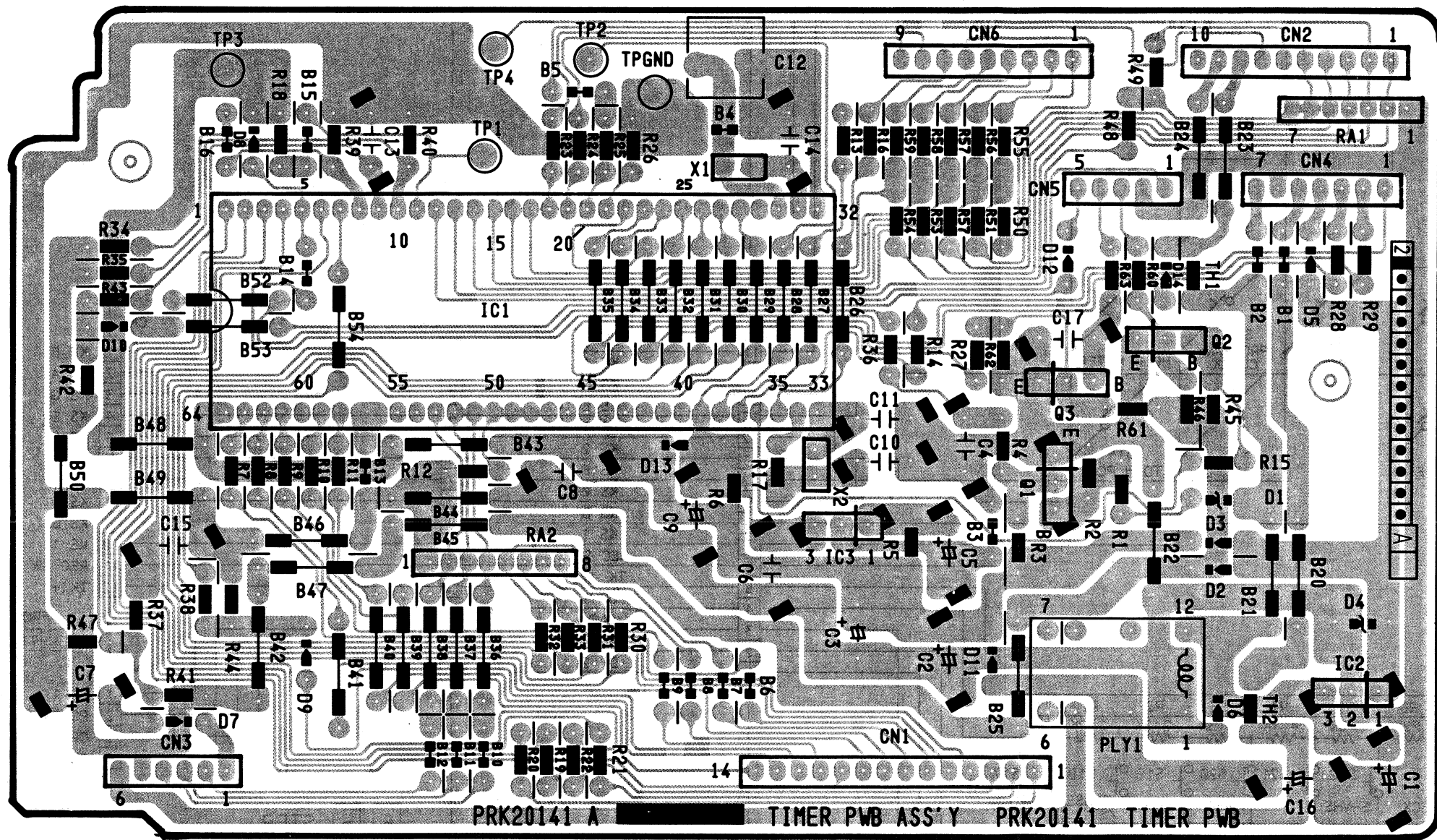


4.33 TIMER SCHEMATIC DIAGRAM



- FROM/TO OPERATION
- KS C
- KS B
- KS A
- KS G
- KS E
- KS 3
- KS 2
- KS F
- KS 0
- KS D
- KS I
- AL/PL RESET
- KS L1
- KS L0
- FROM/TO REAR
- CLK AD IN
- GND
- CLK AD OUT
- AL RES
- AL IN
- FROM/TO SYSCON
- NC
- GND
- UN SW 12V
- RL ON
- SUP REEL FG
- DAT 0
- DAT 1
- DAT 2
- DAT 3
- STORV
- FROM/TO RS-232C
- DATA 0
- DATA 1
- DATA 2
- DATA 3
- STORV
- RS DATA 0
- RS DATA 1
- RS DATA 2
- RS DATA 3





— TIMER Voltage —

SYMBOL No.		REC	PB	SYMBOL No.		REC	PB	
INTEGRATED CIRCUIT				TRANSISTOR				
IC1	1	1.0	1.0	Q1	B	0.6	0.6	
	2	2.4	2.4		C	0.0	0.0	
	3	3.3	3.3		E	0.0	0.0	
	4	3.9	3.9	Q2	B	0.4	0.4	
	5	0.0	0.0			C	4.8	4.8
	6	0.0	0.0			E	0.0	0.0
	7	0.0	0.0	Q3	B	0.0	0.0	
	8	0.0	0.0			C	4.4	4.4
	9	0.0	0.0			E	0.0	0.0
	10	0.0	0.0	CONNECTOR				
	11	0.0	0.0	CN1	1	3.2	3.2	
	12	0.0	0.0			2	3.9	3.9
	13	0.0	0.0			3	2.9	2.9
	14	0.0	0.0			4	2.1	2.1
	15	0.0	0.0			5	1.9	1.9
	16	0.0	0.0			6	2.5	2.5
	17	0.0	0.0			7	2.9	2.9
	18	0.0	0.0			8	1.0	1.0
	19	0.0	0.0			9	0.0	0.0
	20	0.0	0.0			10	0.0	0.0
	21	0.0	0.0			11	0.0	0.0
	22	0.0	0.0			12	0.0	0.0
	23	0.0	0.0			13	0.0	0.0
	24	0.0	0.0			14	0.0	0.0
IC2	1	1.7	1.7	CN2	1	2.2	2.2	
	2	2.1	2.1			2	0.4	0.4
	3	2.4	2.4			3	1.3	1.3
	4	0.0	0.0			4	1.0	1.0
	5	1.3	1.3			5	0.8	0.8
	6	2.5	2.5			6	4.4	4.4
	7	1.1	1.1			7	0.5	0.5
	8	0.0	0.0			8	12.5	12.5
	9	0.0	0.0			9	0.0	0.0
	10	0.0	0.0			10	0.1	0.1
	11	0.0	0.0	CN3	1	-31.1	-31.1	
	12	0.0	0.0			2	0.0	0.0
	13	0.0	0.0			3	0.1	0.1
	14	0.0	0.0			4	4.5	4.5
	15	0.0	0.0			5	4.8	4.8
	16	0.0	0.0			6	4.2	4.2
	17	0.0	0.0	CN4	1	0.1	0.1	
	18	0.0	0.0			2	0.2	0.2
	19	0.0	0.0			3	3.8	3.8
	20	0.0	0.0			4	4.2	4.2
	21	0.0	0.0			5	2.0	2.0
	22	0.0	0.0			6	11.6	11.6
	23	0.0	0.0		CN5	1	4.6	4.6
	24	0.0	0.0				2	0.0
25	0.0	0.0		3		4.8	4.8	
26	0.0	0.0		4		0.0	0.0	
27	0.0	0.0		5		2.4	2.4	
28	0.0	0.0		6		4.1	4.1	
IC3	1	1.9	1.9	CN6	1	1.2	1.2	
	2	1.4	1.4			2	1.3	1.3
	3	4.9	4.9			3	1.4	1.4
	4	0.0	0.0			4	0.3	0.3
	5	0.0	0.0			5	2.4	2.4
	6	0.0	0.0			6	3.9	3.9
	7	0.0	0.0		7	1.9	1.9	
	8	0.0	0.0		8	0.9	0.9	
	9	0.0	0.0		9			
	10	0.0	0.0					
	11	0.0	0.0					
	12	0.0	0.0					

5

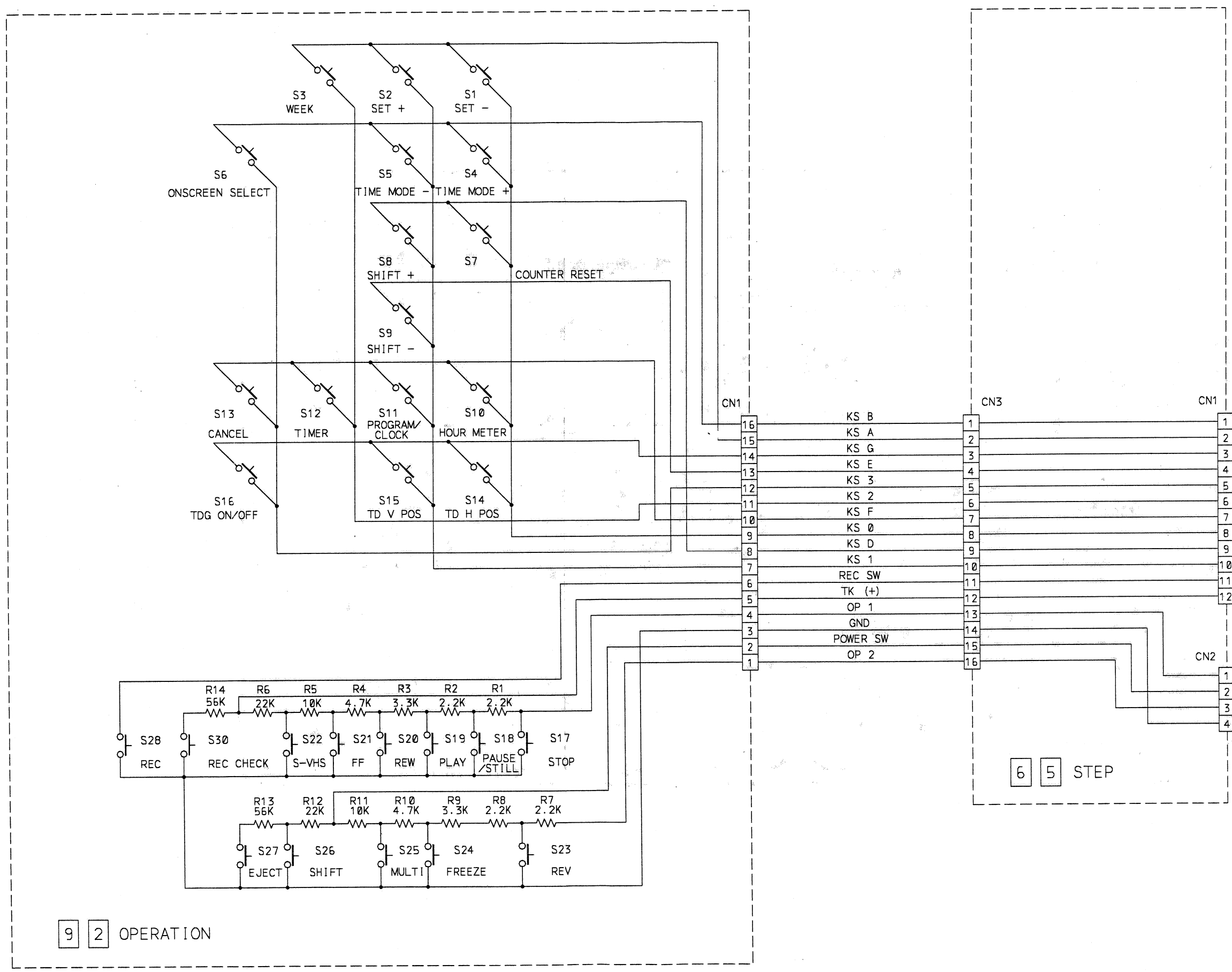
4

3

2

1

	S925	S920
S24	○	×
S25	○	×
S26	○	×



- 16 KS B
- 15 KS A
- 14 KS G
- 13 KS E
- 12 KS 3
- 11 KS 2
- 10 KS F
- 9 KS 0
- 8 KS D
- 7 KS 1
- 6 REC SW
- 5 TK (+)
- 4 OP 1
- 3 GND
- 2 POWER SW
- 1 OP 2

- 1 KS B
- 2 KS A
- 3 KS G
- 4 KS E
- 5 KS 3
- 6 KS 2
- 7 KS F
- 8 KS 0
- 9 KS D
- 10 KS 1
- 11 REC SW
- 12 TK (+)

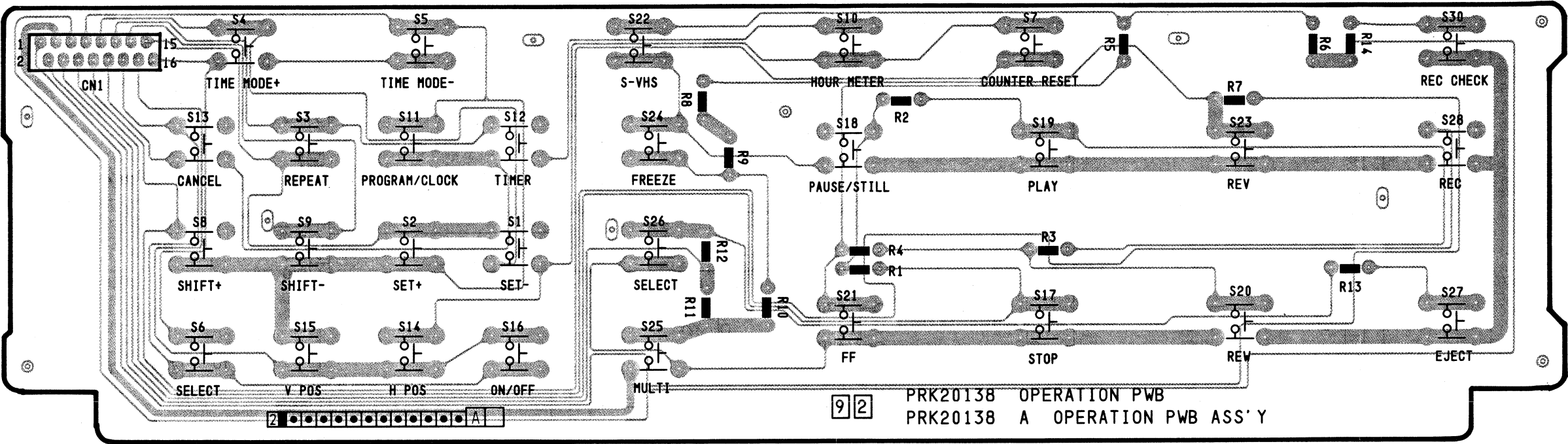
- 1 KS B
- 2 KS A
- 3 KS G
- 4 KS E
- 5 KS 3
- 6 KS 2
- 7 KS F
- 8 KS 0
- 9 KS D
- 10 KS 1
- 11 REC SW
- 12 TK (+)

FROM/TO  
7 7 DISPLAY  
CN10

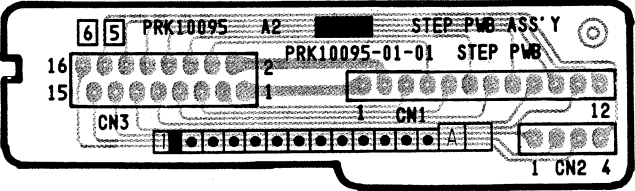
FROM/TO  
7 7 DISPLAY  
CN9

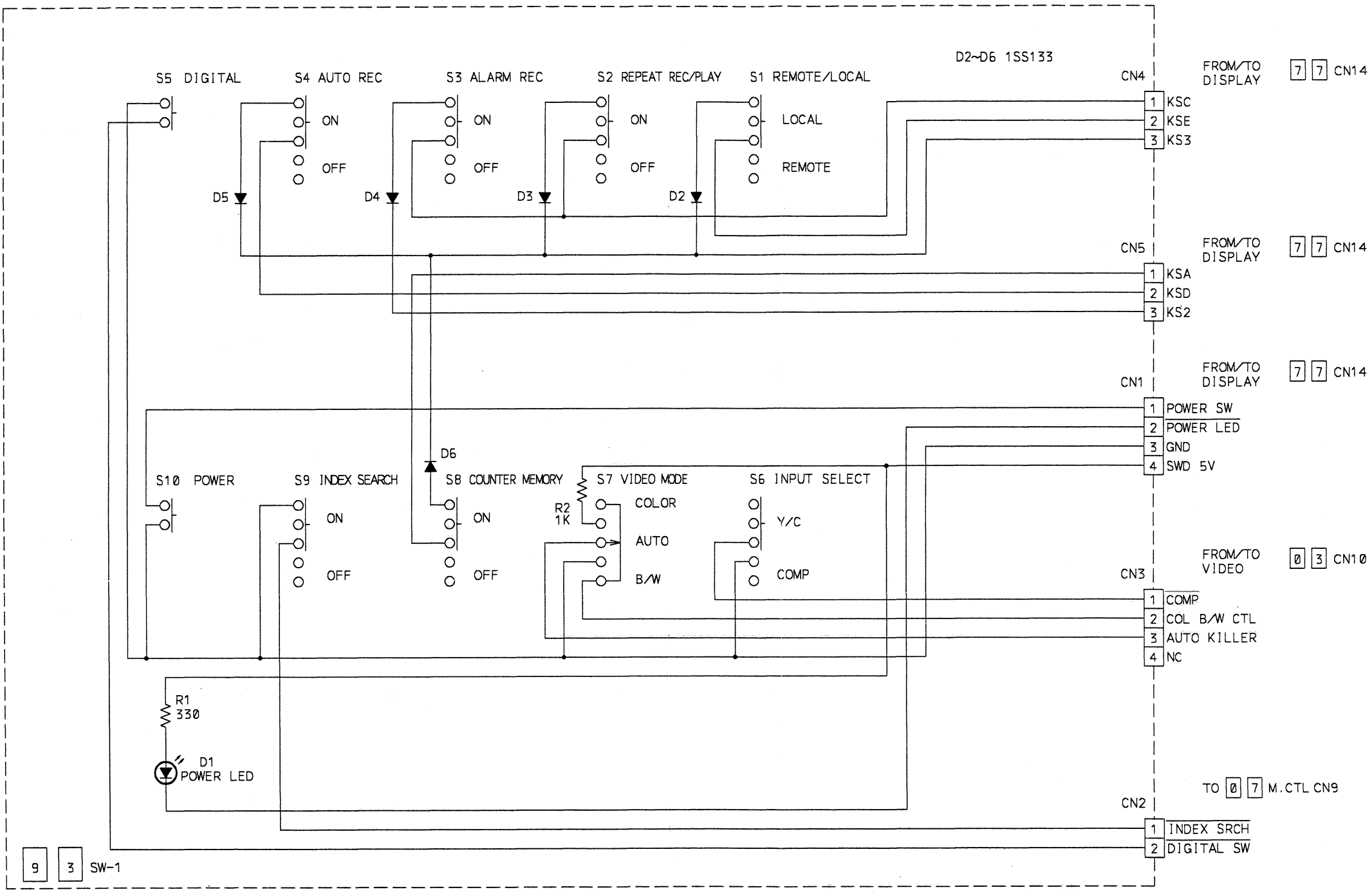
6 5 STEP

— OPERATION —

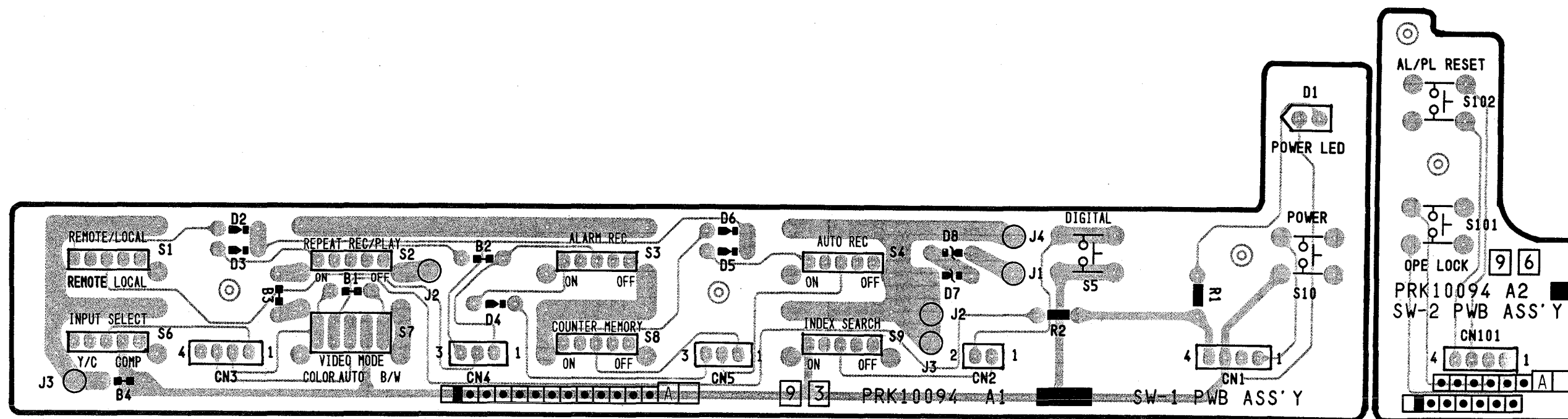


— STEP —





# 4.38 SW CIRCUIT BOARD



A

B

C

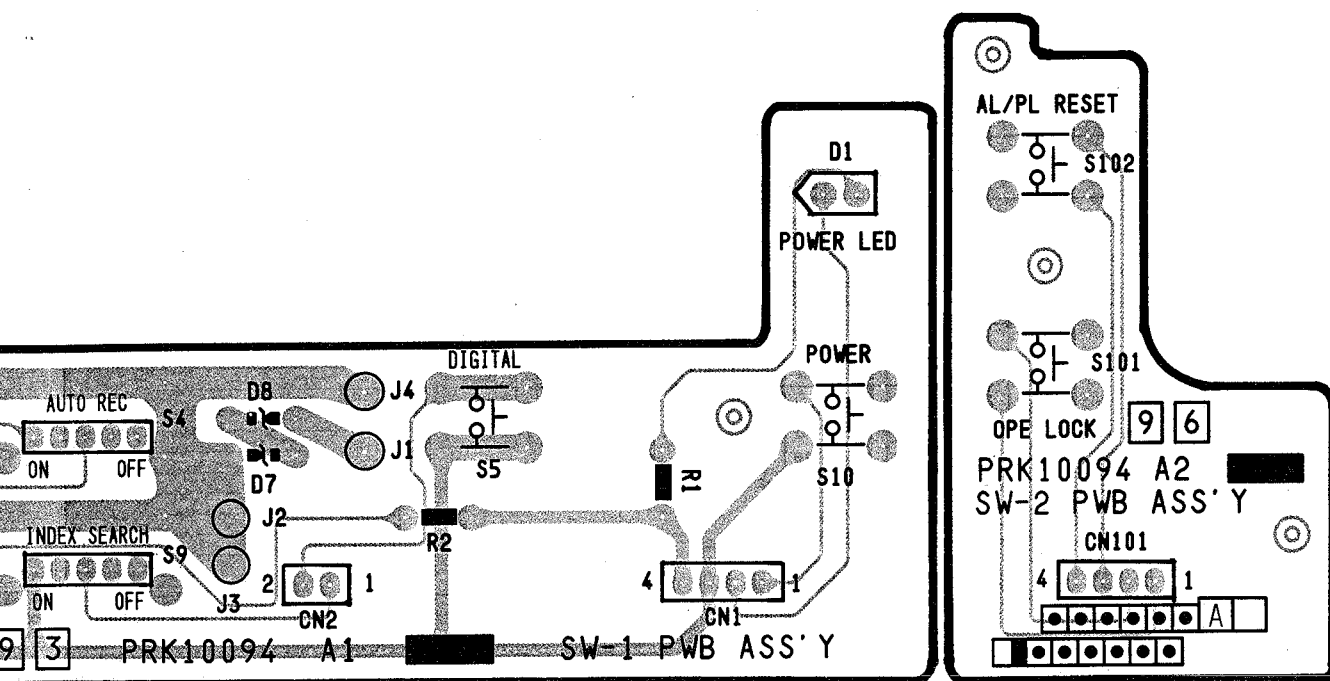
4-47

4-47

E

F

G



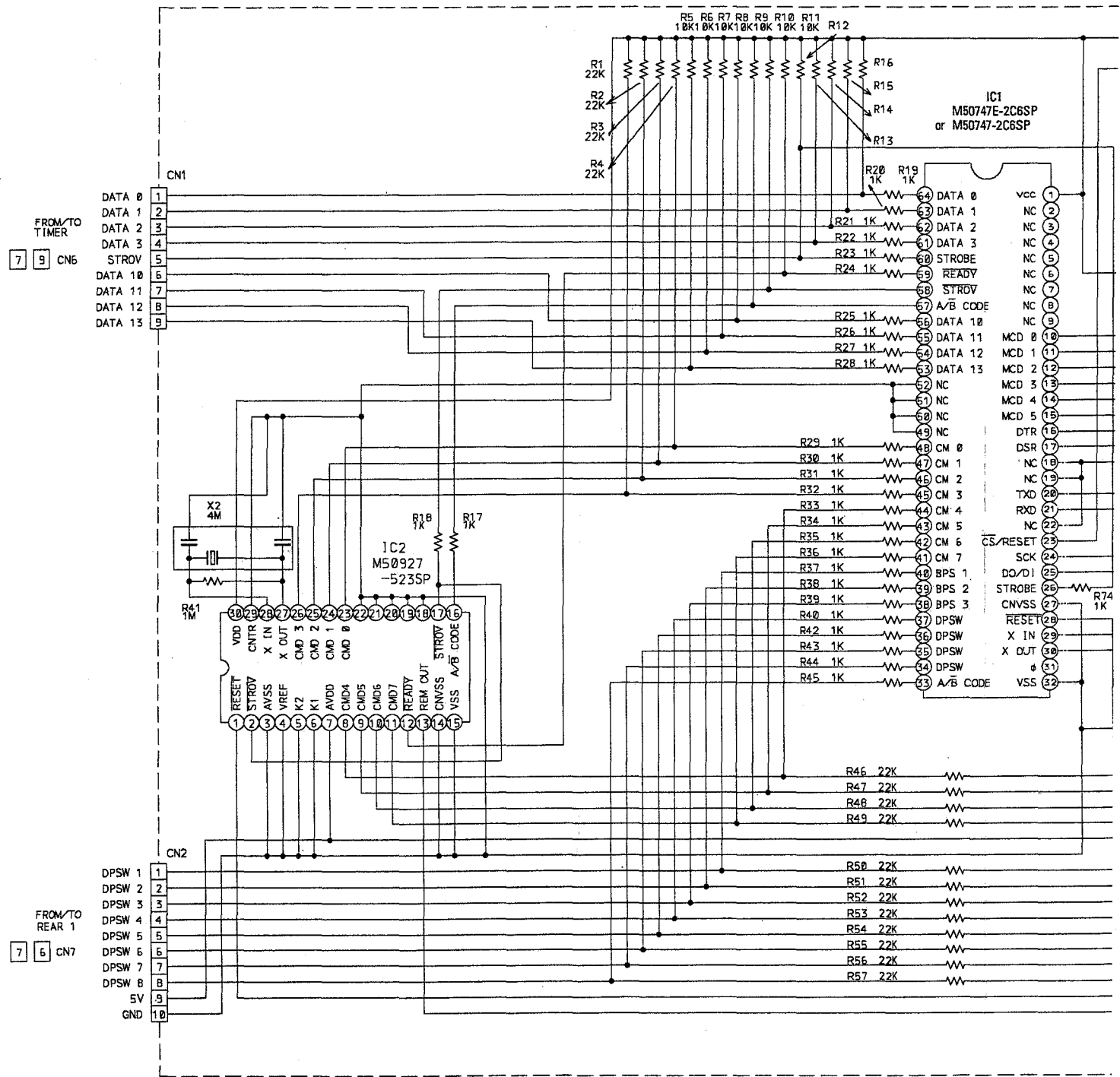
## 6



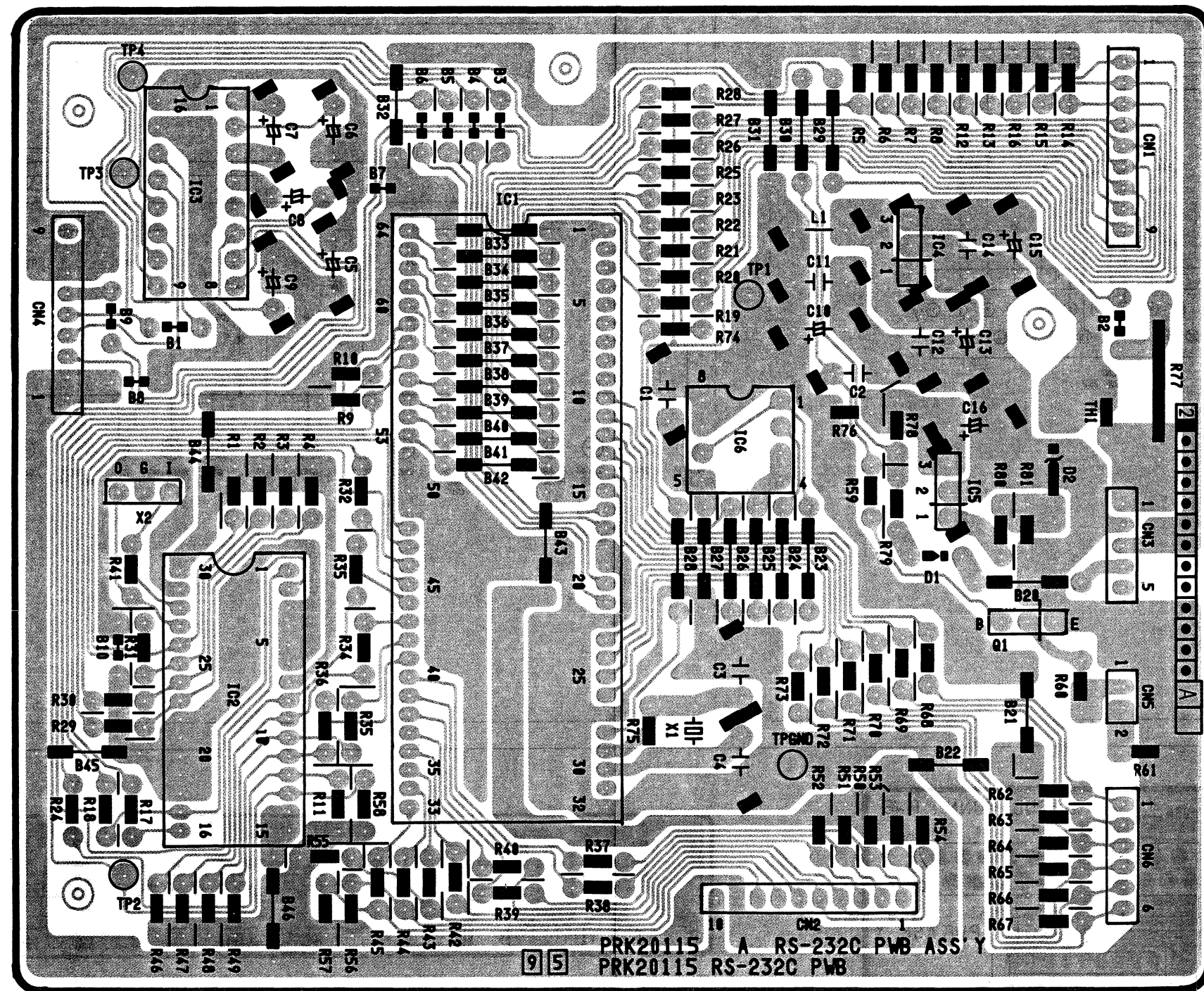


SYMBOL No.	REC	PB	SYMBOL No.	REC	PB	SYMBOL No.	REC	PB
INTEGRATED CIRCUIT			IC2	1	5.0	TRANSISTOR		
IC1	1	0.0	IC2	2	0.0	Q1	B	0.1
	2	0.0		3	0.0		C	0.0
	3	0.0		4	0.0		E	0.0
	4	0.0		5	0.0	CONNECTOR		
	5	0.0		6	0.0	CN1	1	1.5
	6	0.0		7	0.0		2	1.5
	7	0.0		8	0.0		3	1.5
	8	0.0		9	0.0	CN2	1	1.1
	9	0.0		10	0.0		2	1.1
	10	0.0		11	0.0		3	1.1
	11	0.0		12	0.0	CN3	1	12.6
	12	0.0		13	0.0		2	12.6
	13	0.0		14	0.0		3	12.6
	14	0.0		15	0.0	CN4	1	0.0
	15	0.0		16	0.0		2	0.0
	16	0.0		17	0.0		3	0.0
IC3	1	0.0	IC4	1	0.0	CN5	1	5.9
	2	0.0		2	0.0		2	5.9
	3	0.0		3	0.0		3	5.9
	4	0.0		4	0.0	CN6	1	5.1
	5	0.0		5	0.0		2	5.1
	6	0.0		6	0.0		3	5.1
	7	0.0		7	0.0	IC5	1	0.0
	8	0.0		8	0.0		2	0.0
	9	0.0		9	0.0		3	0.0
	10	0.0		10	0.0	IC6	1	0.0
	11	0.0		11	0.0		2	0.0
	12	0.0		12	0.0		3	0.0
	13	0.0		13	0.0		4	0.0
	14	0.0		14	0.0		5	0.0
	15	0.0		15	0.0		6	0.0
	16	0.0		16	0.0		7	0.0

4.39 RS-232C SCHEMATIC DIAGRAM



# 4.40 RS-232C CIRCUIT BOARD



A

B

C

4-49

4-49

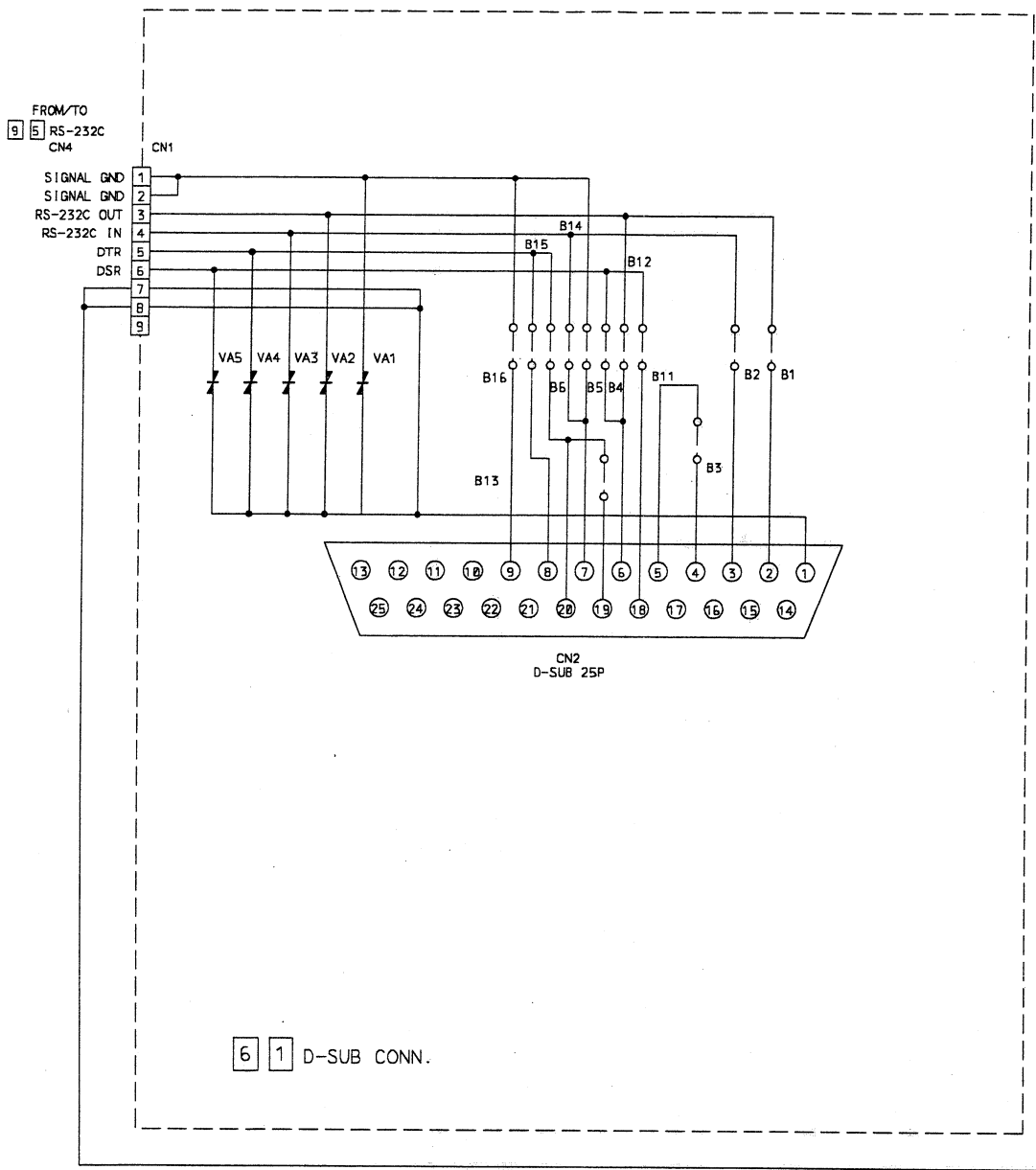
E

F

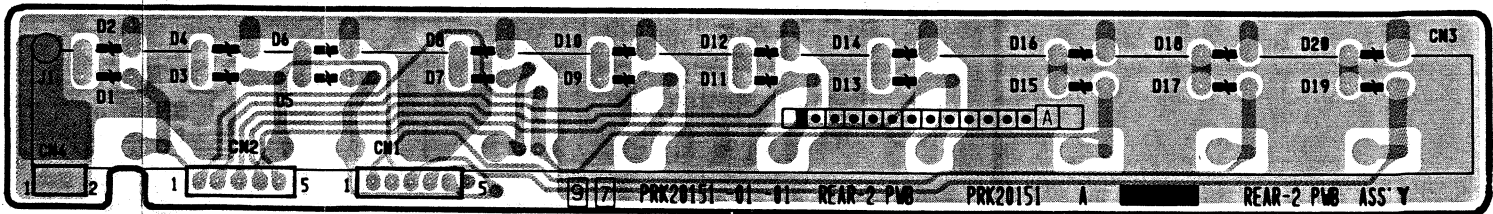
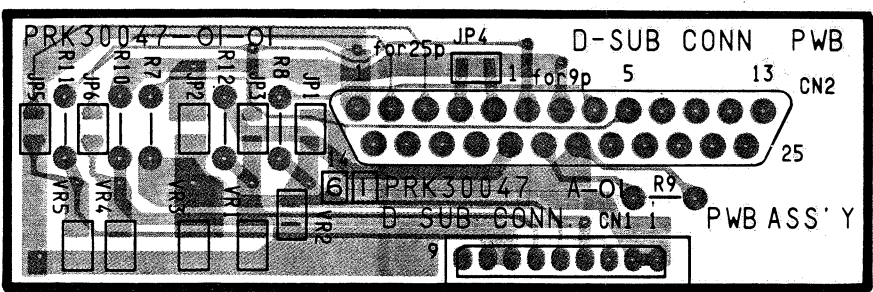
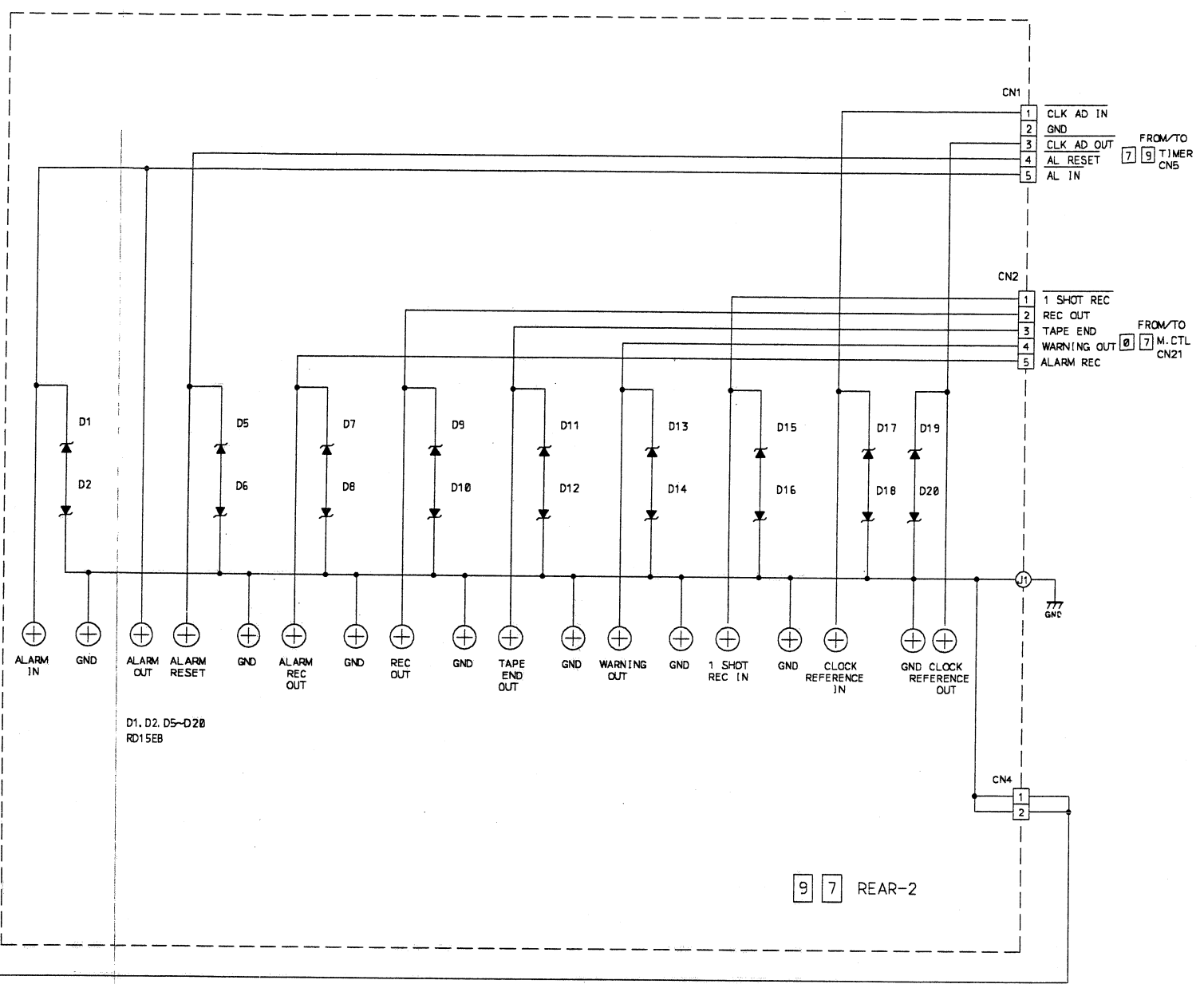
G

H

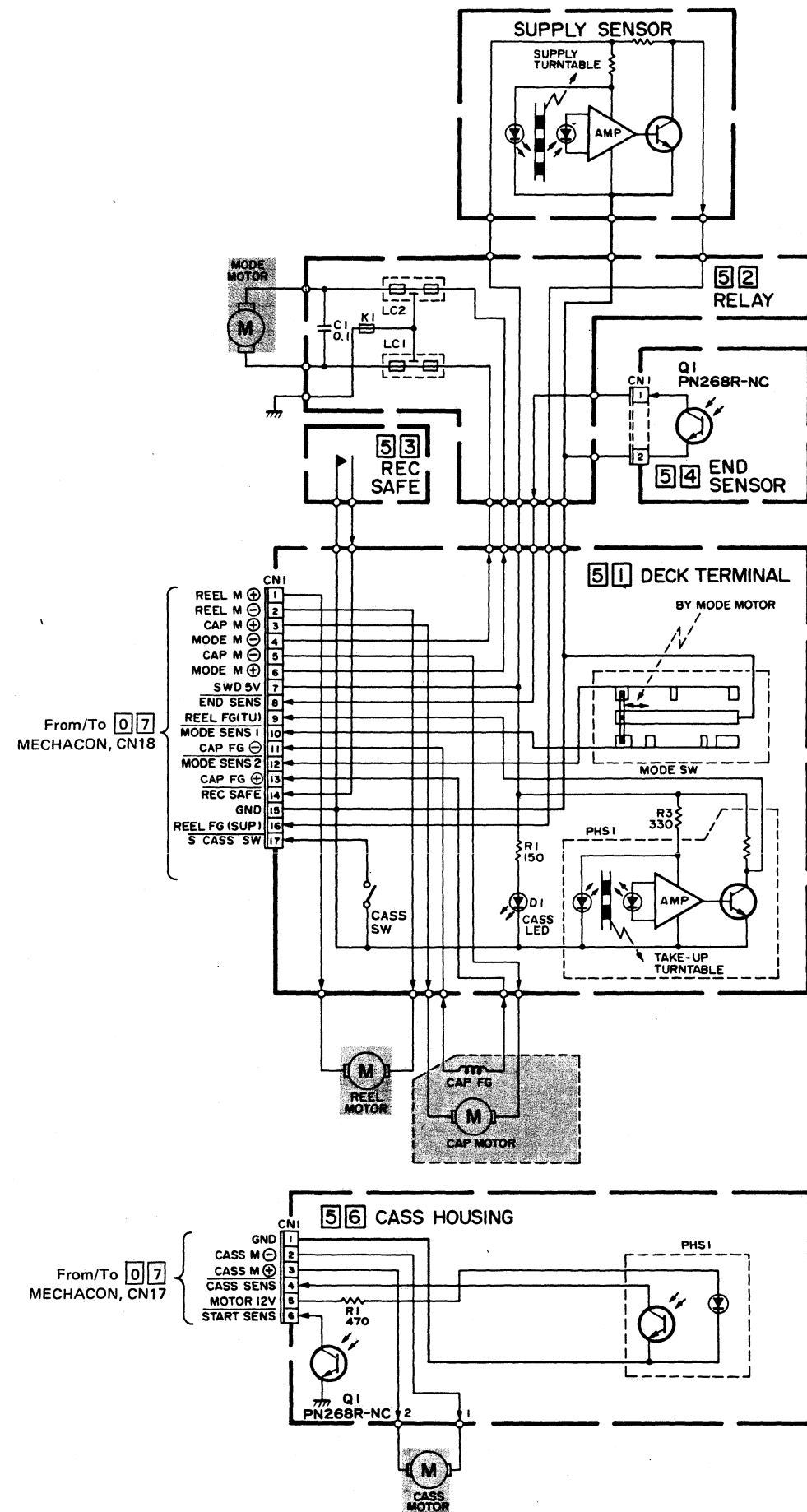
4.41 D-SUB CONNECTOR SCHEMATIC DIAGRAM & CIRCUIT BOARD



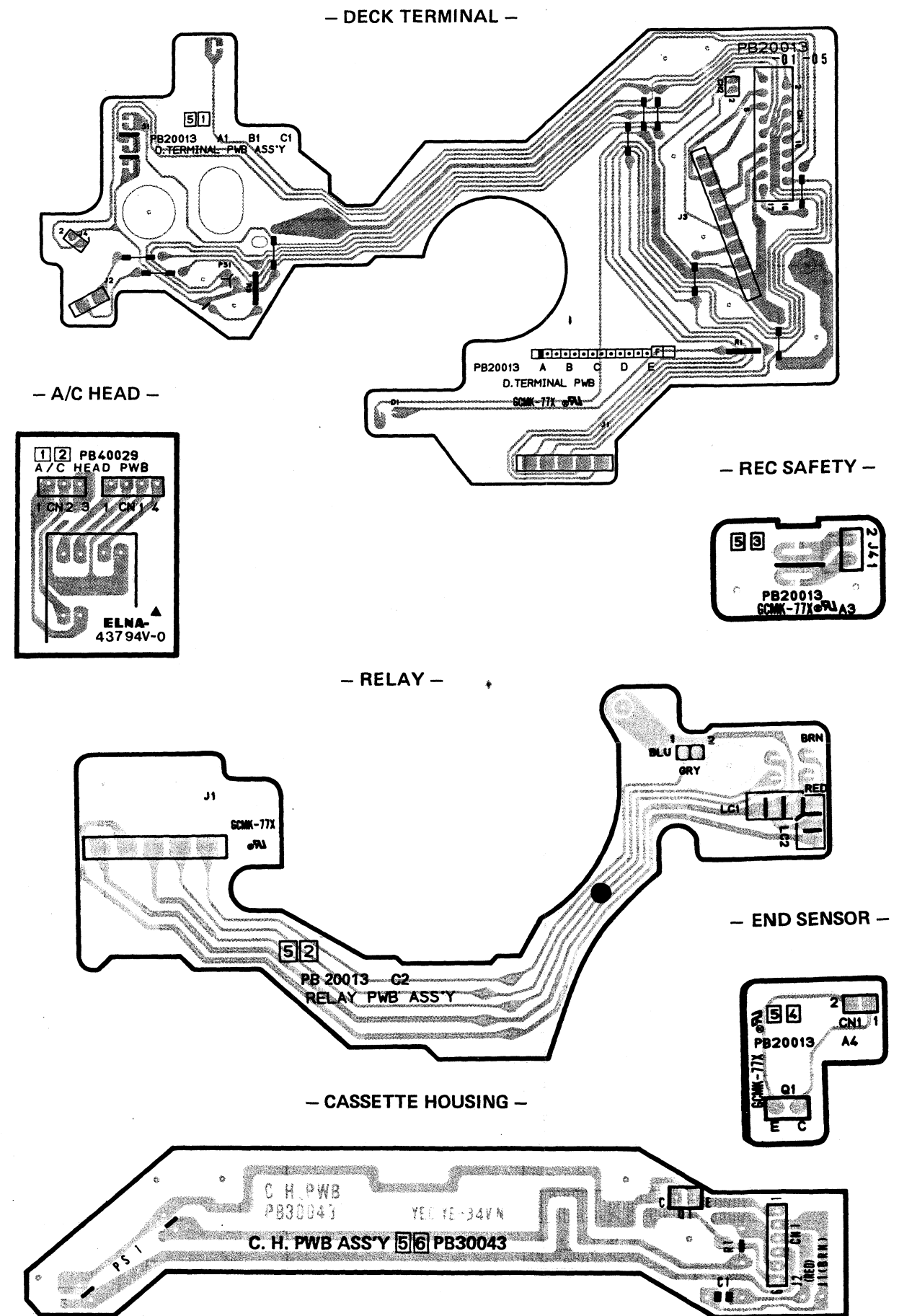
4.42 REAR-2 SCHEMATIC DIAGRAM & CIRCUIT BOARD



#### 4.43 DECK TERMINAL SCHEMATIC DIAGRAMS

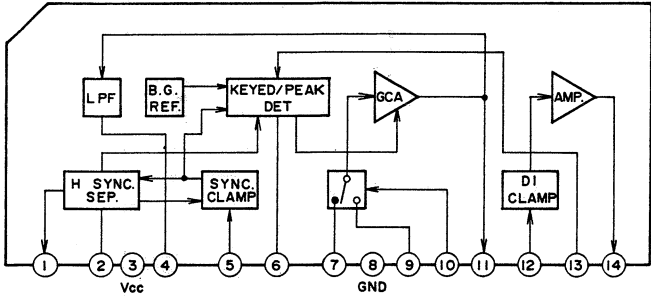


#### 4.44 DECK TERMINAL CIRCUIT BOARDS



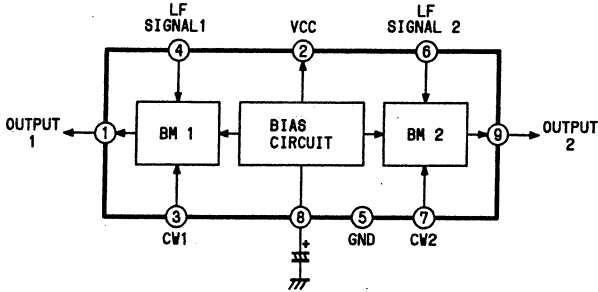
4.45 IC BLOCK DIAGRAMS

— AN3916 —  
AGC



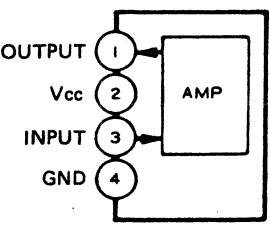
— AN6041 —

Dual Balanced Modulator For Video Cameras



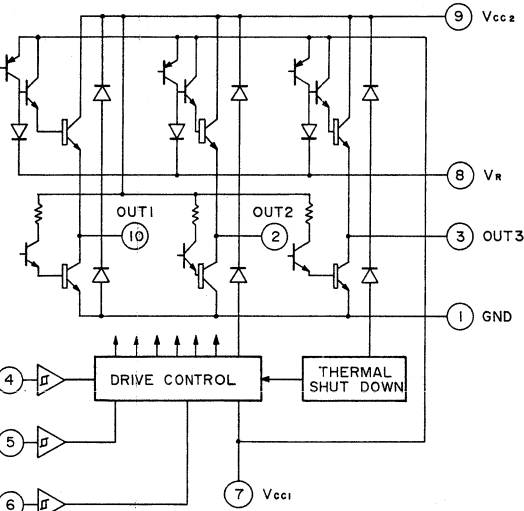
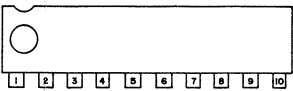
— AN608P —

Wide Band Amplifier Circuit



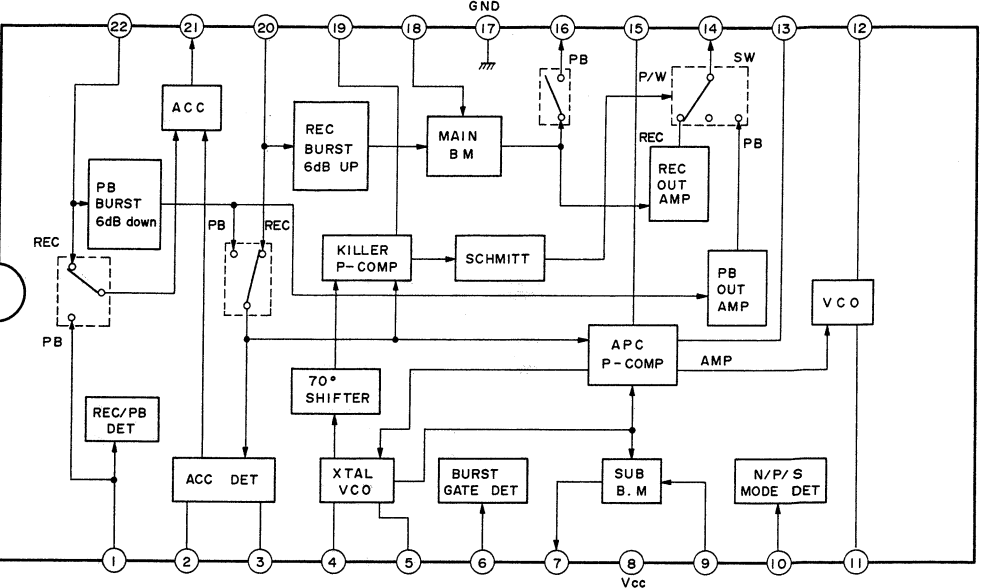
— BA6259N —

2-ch Reversible Motor Driver

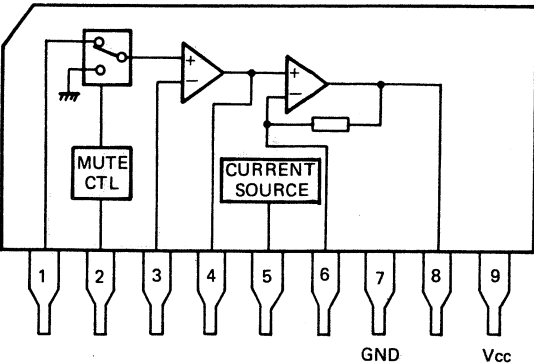


— AN6366N —

VTR Color Signal Processing Circuit

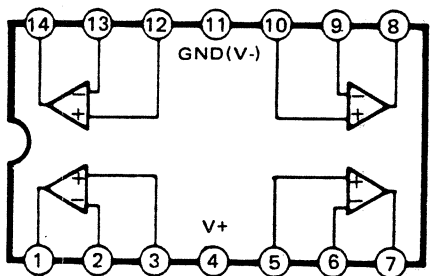


— AN6392 —  
VTR REC Amplifier



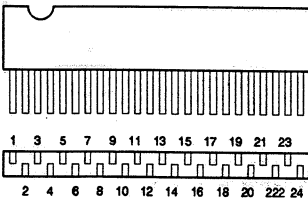
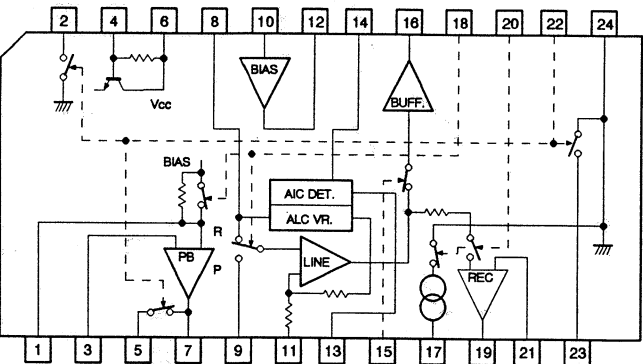
— BA10324 —

Quad Ground Operational Amplifiers

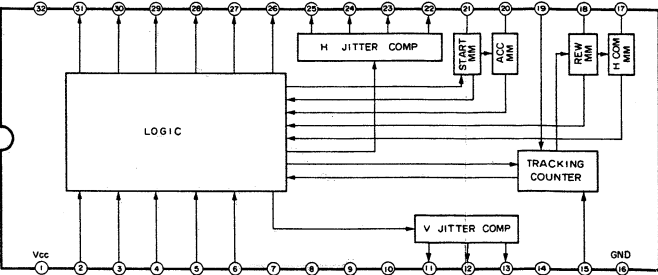


— BA7751ALS —

Normal Audio Signal Processings

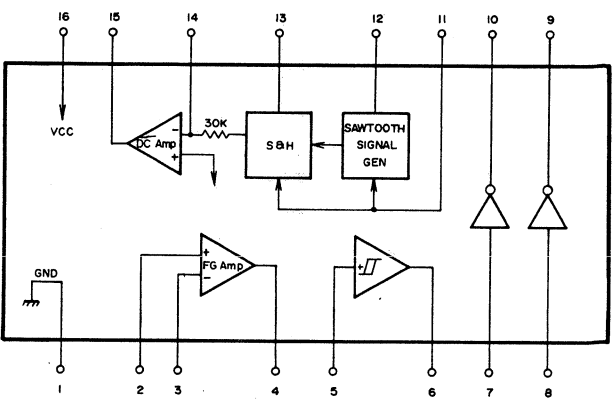


— BU2767S —

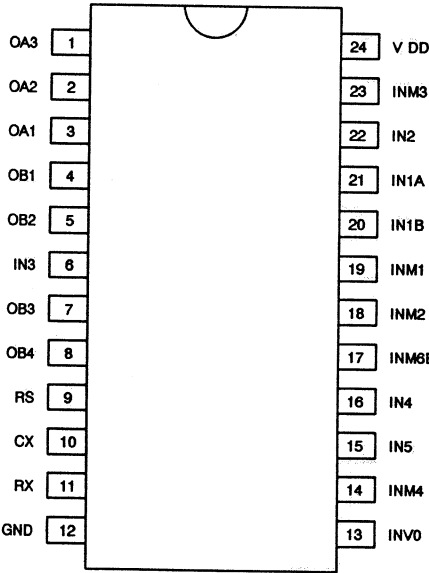


— BA6302AF —

FG System Speed Servo Control Circuit

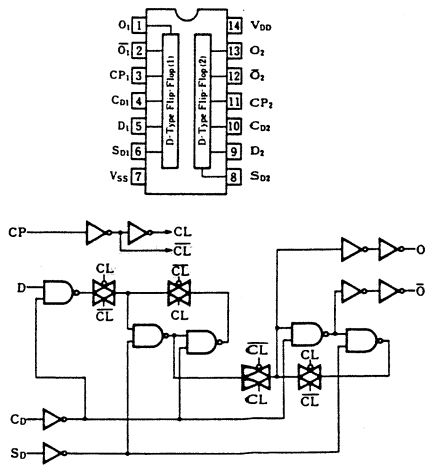


— BU3791 —



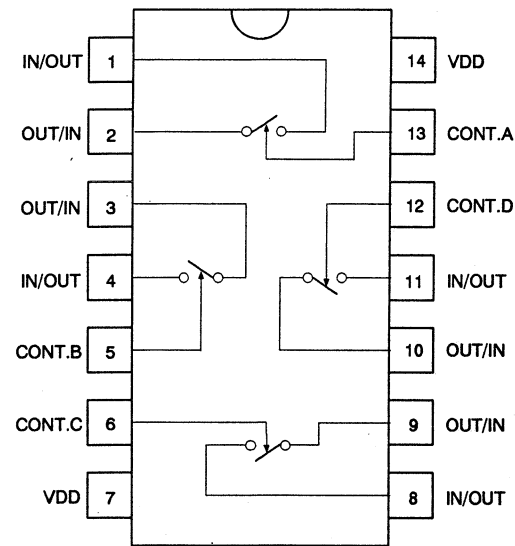
— BU4013B —

Dual D-Type Flip-Flop

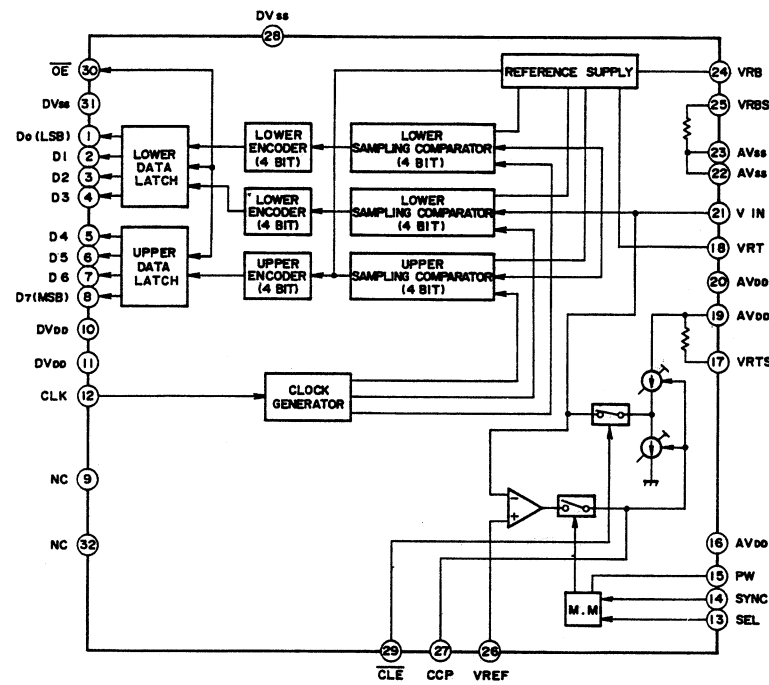




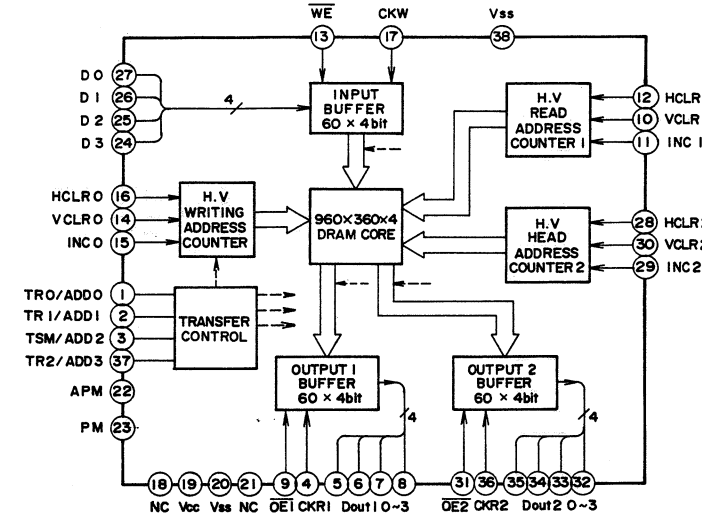
— BU4066B —  
Quad Analog Switcher



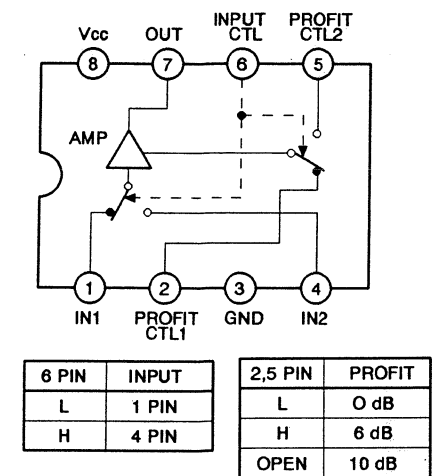
— CXD1176Q —  
A/D Converter



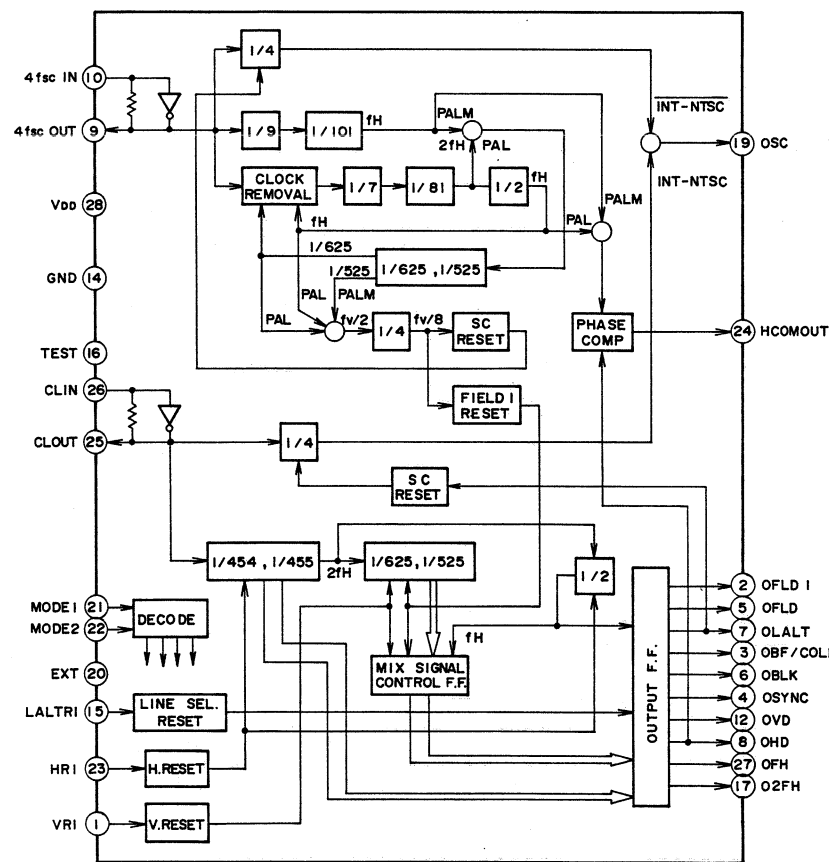
— CXK1206M —  
Field Memory



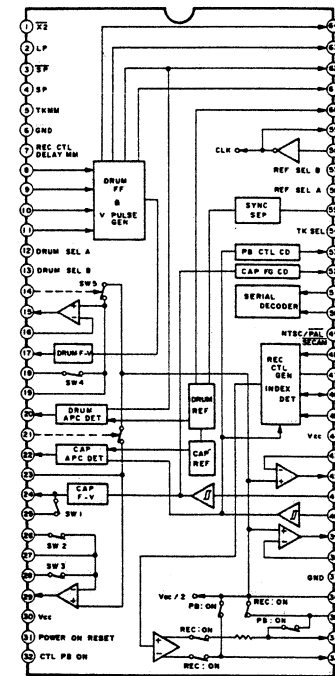
— HA118070 —  
Video Signal Switcher



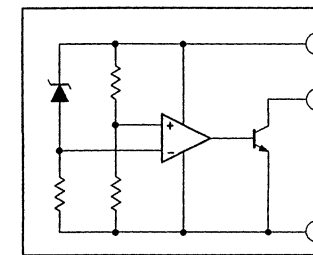
— CXD1217M —  
Sync Generator



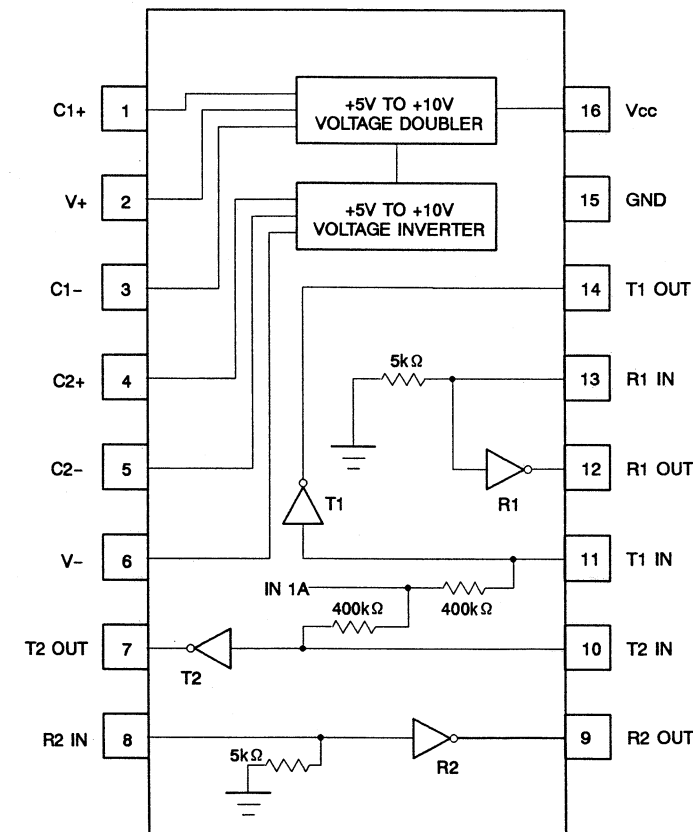
— HD49722NT —  
VTR Servo Switcher



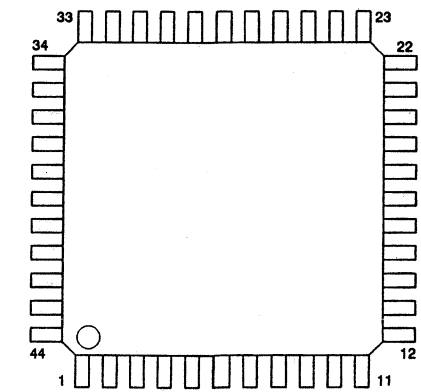
— IC-PST523H-2 —



— ICL232CPE —  
+5 Volt Powered Dual RS-232C Transmitter/Receiver

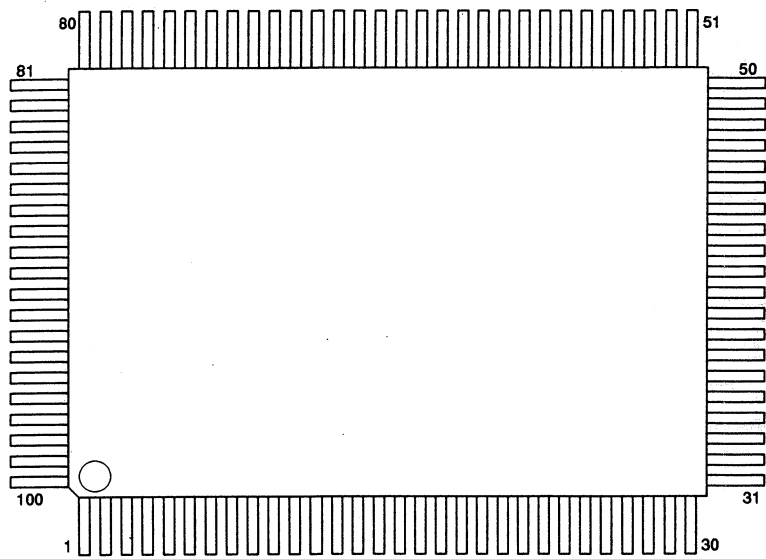


— JCL0005 —  
Digital APC Circuit



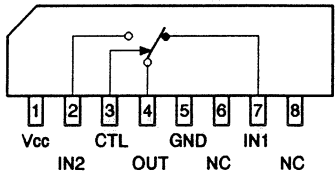
PIN NO.	PIN NAME	PIN NO.	PIN NAME
1	OSO	23	CK1
2	OSCI	24	N.C
3	N.C	25	N.C
4	INTL	26	CK2
5	VDD	27	GND
6	GND	28	VDD
7	OE1	29	S1
8	OE2	30	S2
9	N.C	31	S3
10	APCI	32	LOF
11	GND	33	GND
12	N.C	34	CB1
13	TPAT	35	N.C
14	RSTT	36	N.C
15	TEST	37	CB2
16	VDD	38	GND
17	GND	39	VDD
18	CLKI	40	INV
19	N.C	41	A0
20	N.C	42	A1
21	N.C	43	A2
22	GND	44	GND

— JCL0013 —  
Memory Controller

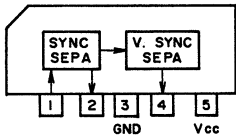


PIN NO.	I/O	PIN NAME	PIN NO.	I/O	PIN NAME	PIN NO.	I/O	PIN NAME
1	I	COLOR	35	O	RYDA CLK	69	O	AD01
2	O	C DET	36	-	N.C	70	O	AD00
3	-	VDD	37	O	BYDA CLK	71	O	VCLR0
4	-	VSS	38	-	N.C	72	O	INC0
5	I	STEP A	39	I	RCK	73	O	HCLR0
6	I	STEP B	40	-	VSS	74	I	RESET
7	I	STEP C	41	I	RHD	75	-	N.C
8	I	STEP D	42	I	RC SYNC	76	I	NTPAL
9	I	SHIFT	43	I	R2FH	77	I	HDSHFT
10	-	N.C	44	I	RVD	78	-	VDD
11	I	MALTI A	45	I	BLK IN	79	-	VSS
12	I	MALTI B	46	I	SW MODE	80	I	REC
13	I	FAST	47	O	CDI 3	81	I	CAM SW
14	I	FRM	48	O	CDI 2	82	I	SLOW
15	-	VSS	49	O	CDI 1	83	I	D FF
16	O	INC 1	50	O	CDI 0	84	I	WCMD
17	O	HCLR 1	51	I	CD7 IN	85	I	JVD
18	O	VCLR 1	52	I	CD6 IN	86	I	JCYN
19	O	FAST OE	53	-	VDD	87	I	JHD
20	O	SEC OE	54	-	VSS	88	-	N.C
21	O	CD0 OUT	55	I	CD5 IN	89	I	WCK
22	O	CD1 OUT	56	I	CD4 IN	90	-	VSS
23	O	CD2 OUT	57	I	CD3 IN	91	I	ONESEC
24	O	CD3 OUT	58	I	CD2 IN	92	O	Y BLK
25	O	CD4 OUT	59	I	CD1 IN	93	I	BLK SW
26	O	CD5 OUT	60	I	CD0 IN	94	-	N.C
27	O	CD6 OUT	61	O	FRM PLS	95	-	N.C
28	-	VDD	62	O	Y2WE	96	-	N.C
29	-	VSS	63	O	Y1WE	97	-	N.C
30	O	CD7 OUT	64	O	MPX CLK	98	-	N.C
31	I	CDO 3	65	-	VSS	99	O	C1WE
32	I	CDO 2	66	O	AD CLK	100	O	C2WE
33	I	CDO 1	67	O	AD03			
34	I	CDO 0	68	O	AD02			

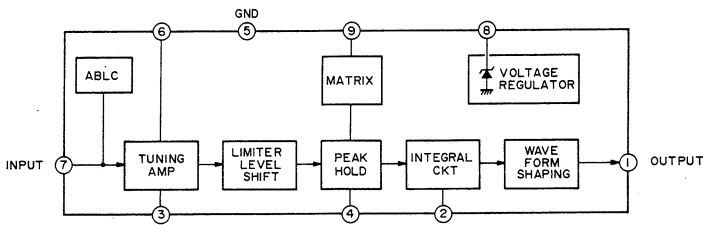
— LA7016 —  
Video Signal Switcher



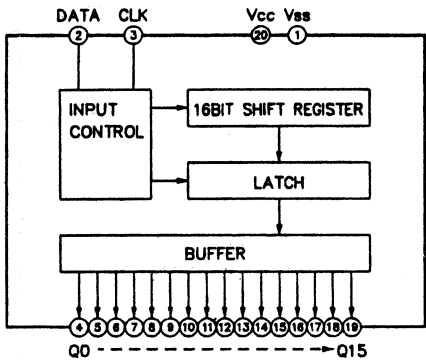
— LA7213 —  
Sync Separator



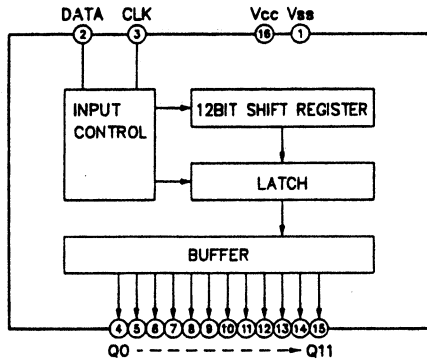
— LA7225 —  
Pre-Amplifier Circuit for Remocon Signal Receivers



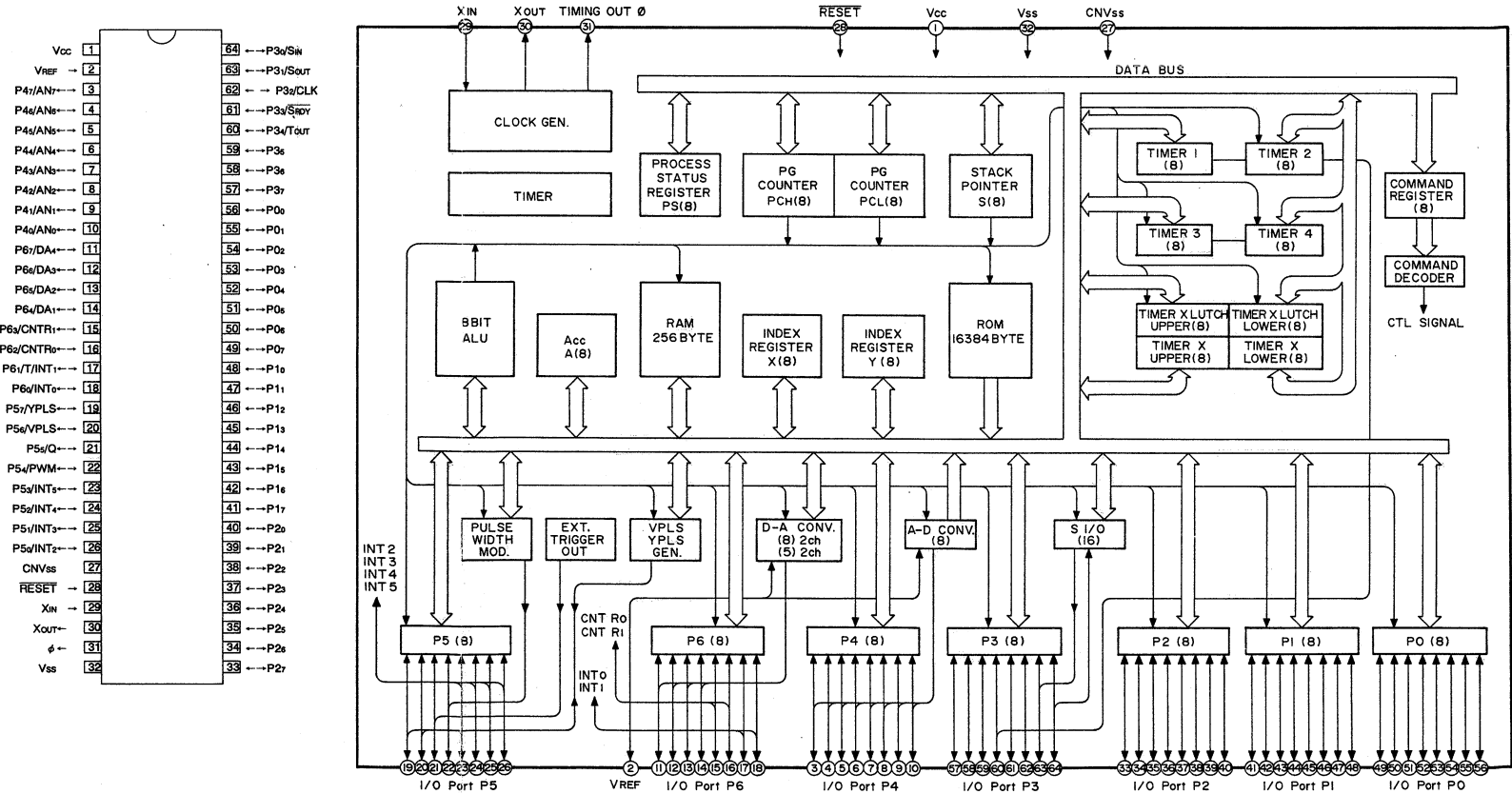
— M50255P —  
16 Bit Serial Data/Parallel Converted IC



— M50253P —  
12 Bit Serial Data/Parallel converted IC

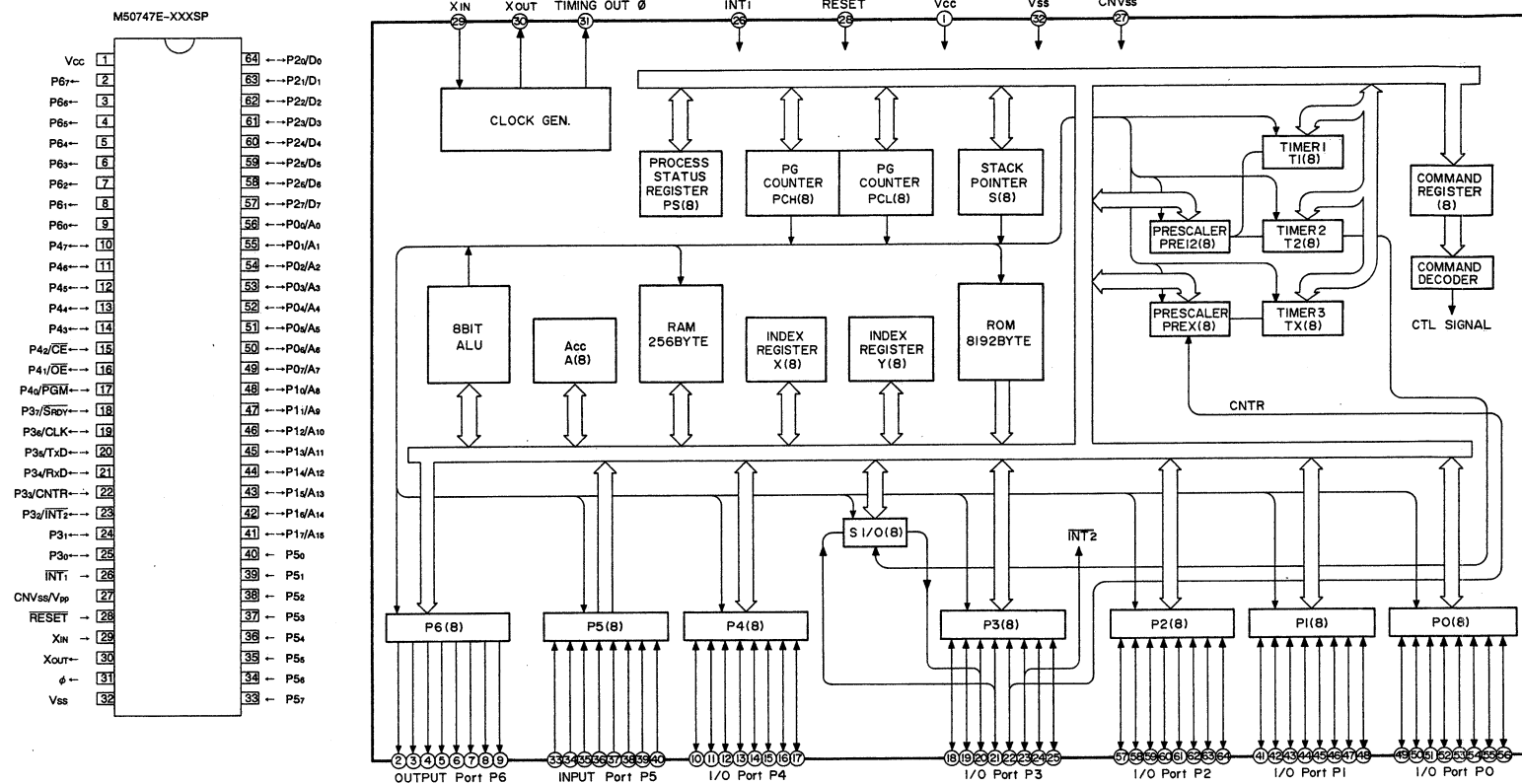


— M37524E4-272SP —  
16384-bit PROM Micro Computer

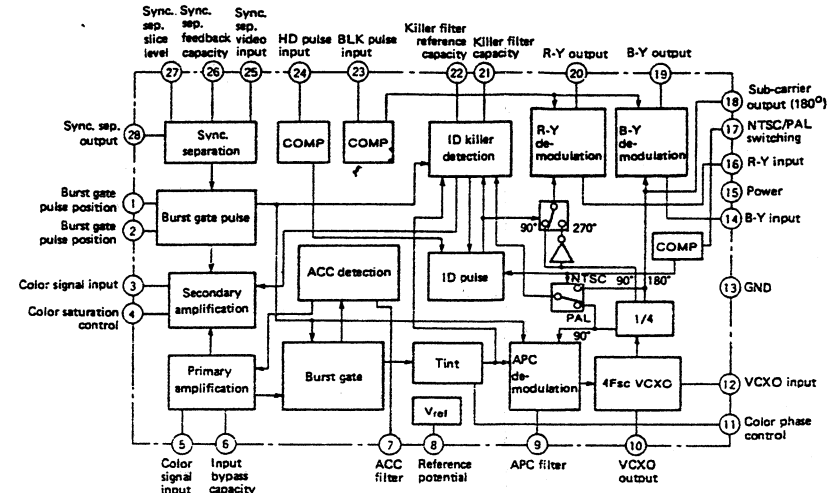




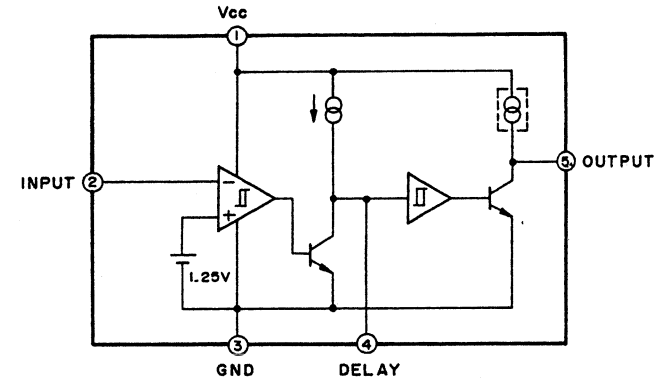
**— M50747E-205SP —**  
8192-bit PROM Micro Computer



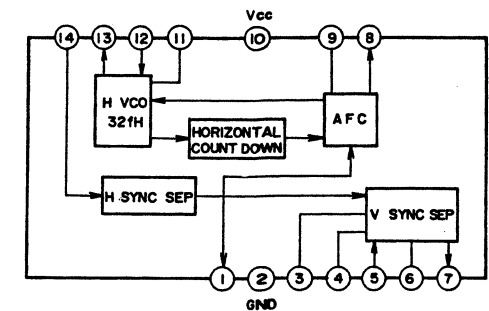
**— M51271FP —**  
NTSC/PAL Decoder



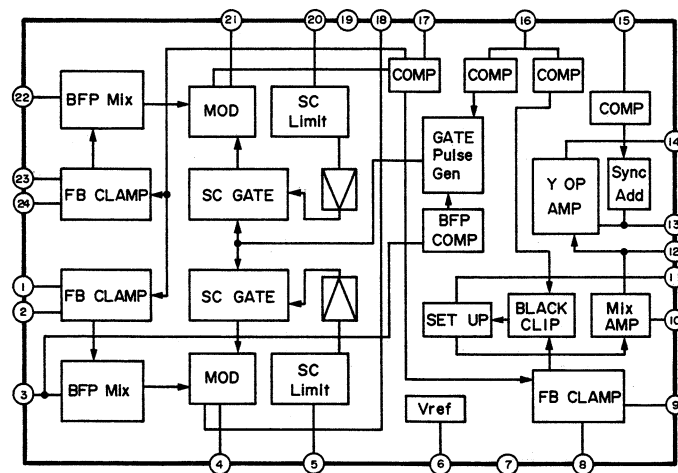
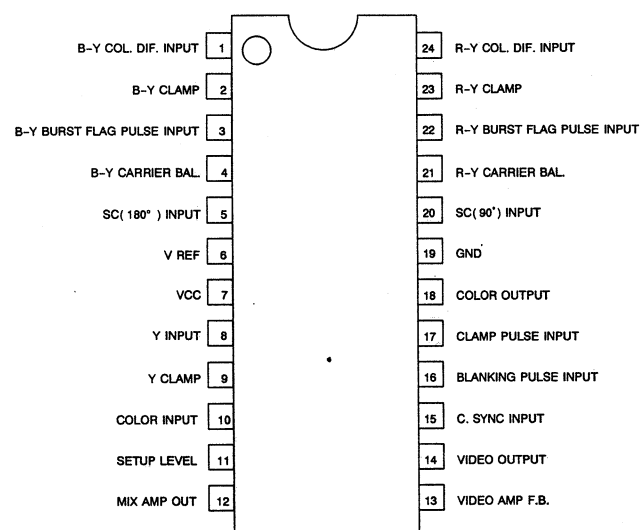
**— M51957BL —**  
Voltage Detector/System Reset



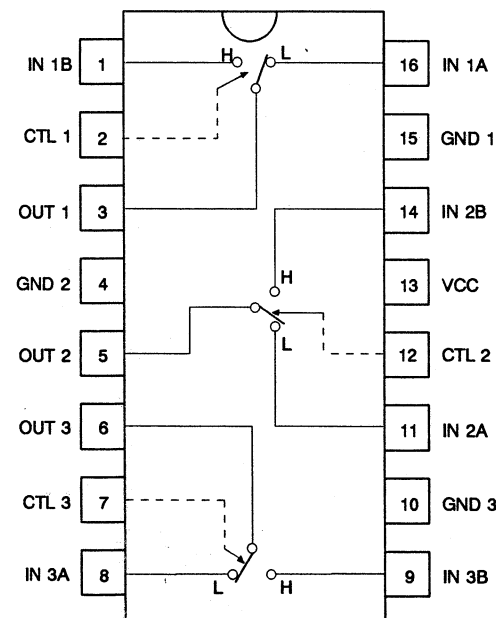
**— M52684AP —**  
Sync. sep./H. AGC/H. VCO



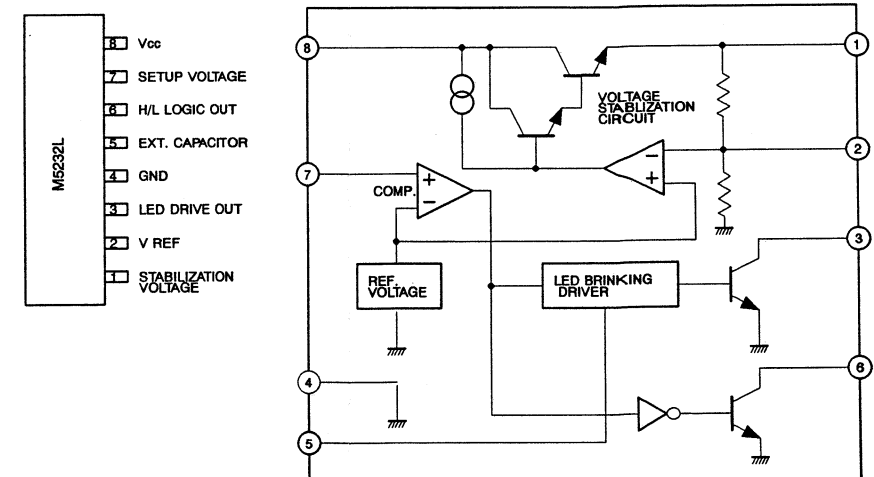
**— M51272FP —**  
NTSC Encoder



**— M52055P —**  
3-ch Analog Switch



**— M5232L —**  
Voltage Detect Circuit for Alarm System

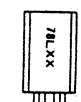


— M5278L09 —  
Regulator



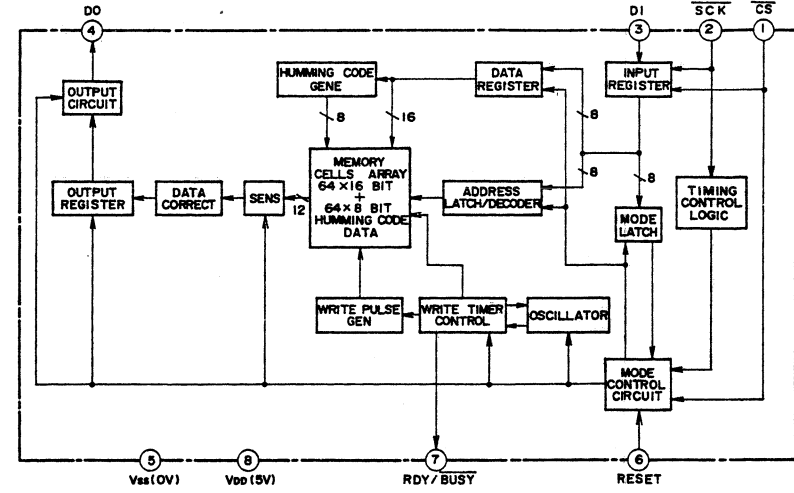
- ① IN
- ② GND
- ③ OUT

— M5278L56 —  
Regulator

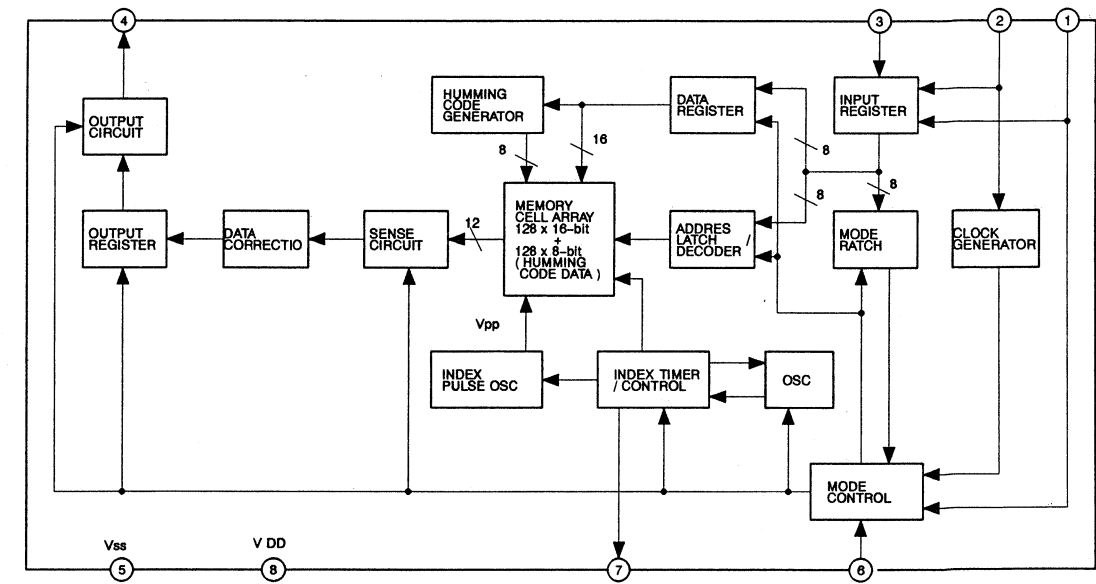
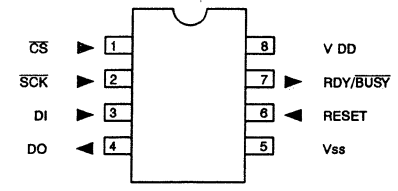


- ① OUT
- ② COMMON
- ③ IN

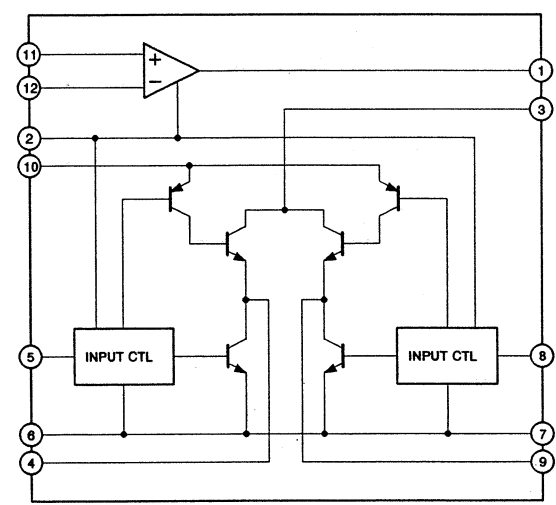
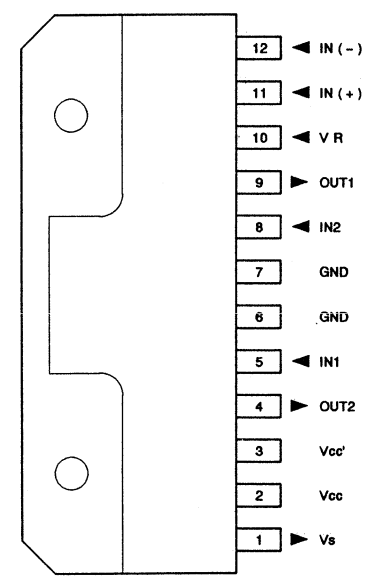
— M6M80011AP —  
1024-bit CMOS EEP ROM



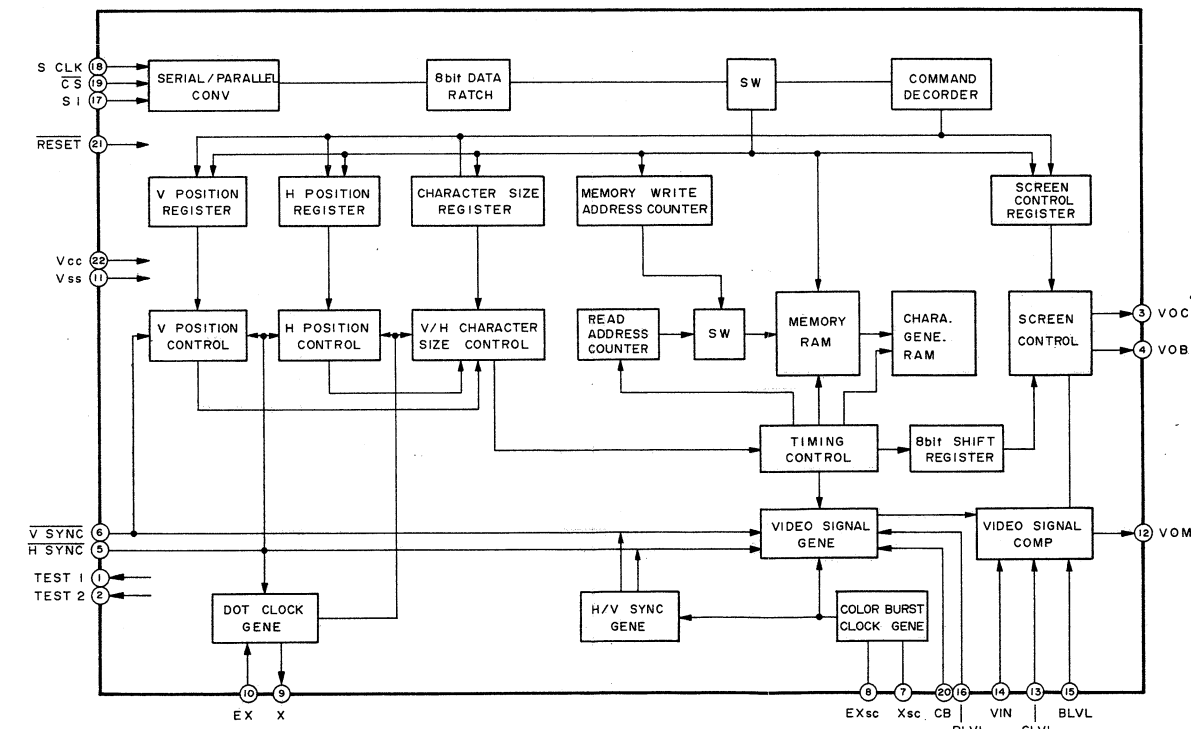
— M6M80021P —  
2048-bit COMS EEP ROM



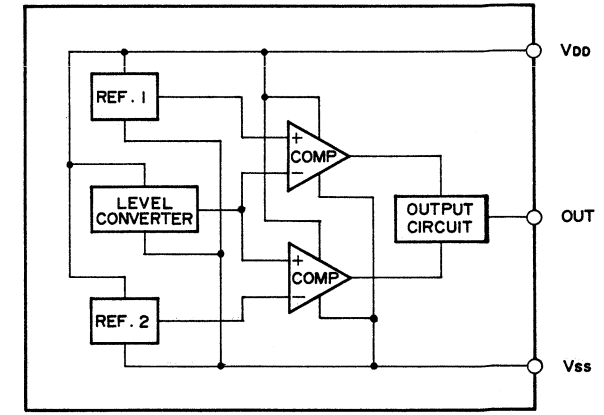
— M54647L —  
Bi-Dirvctional Motor Driver with OP AMP



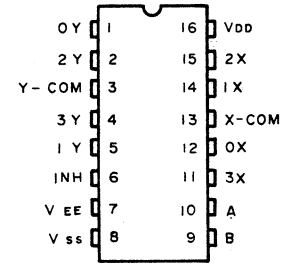
— MB89010A-108 —



— MN1280P —  
COMS LSI for Power Supply Voltage Detector

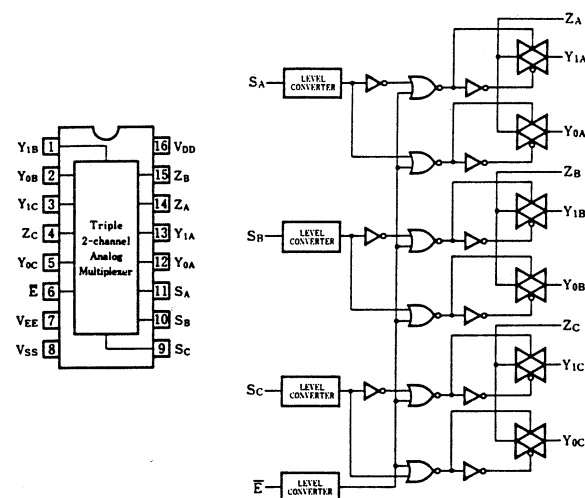


— MN4052BS —  
Dual 4-ch Analog Multiplexer



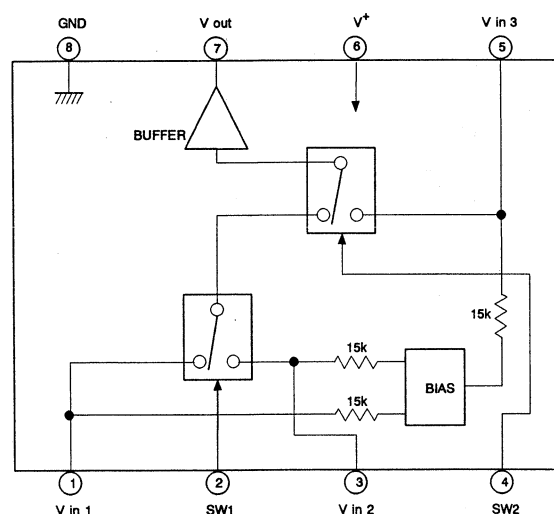
CONTROL INPUTS			ON CHANNEL
INHIBIT	B	A	TC4052BP TC4052BF
L	L	L	0X, 0Y
L	L	H	1X, 1Y
L	H	L	2X, 2Y
L	H	H	3X, 3Y
L	L	L	—
L	L	H	—
L	H	L	—
L	H	H	—
H	*	*	NONE
* Don't Care.			

— MN4053B —  
Triple 2-ch Analog Multiplexer

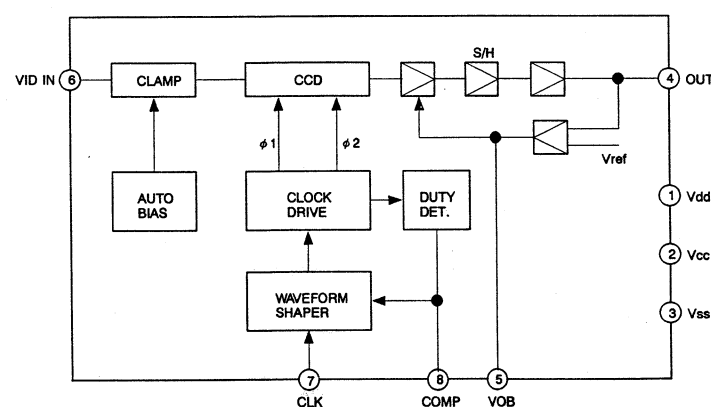


— NJM2234D —  
3-Input Video Signal Switcher

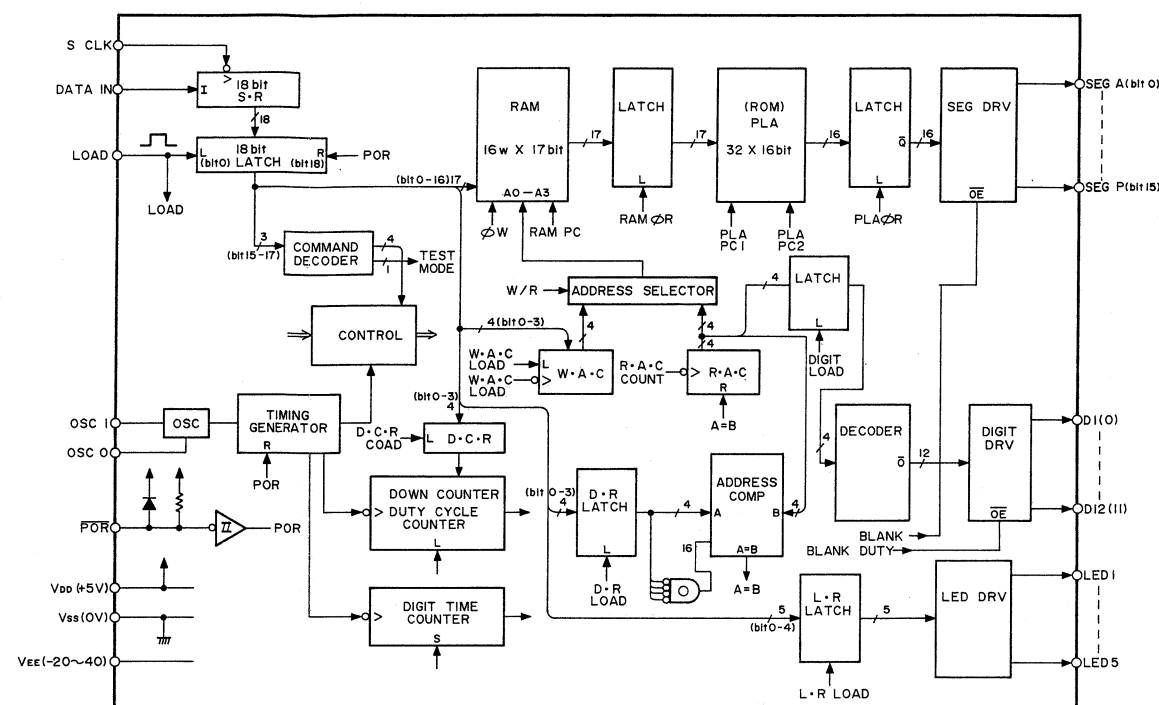
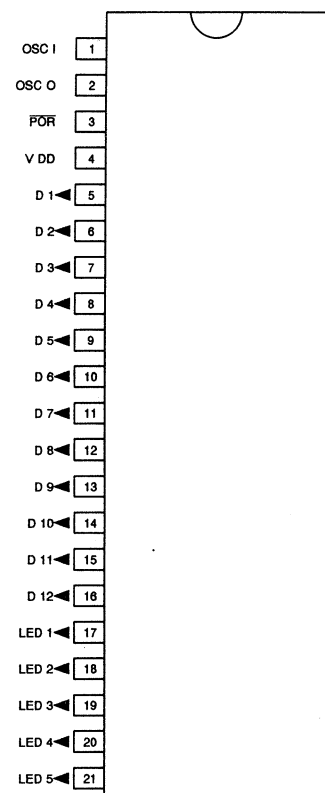
SW1	SW2	OUTPUT SIGNAL
L	L	V IN 1
H	L	V IN 2
L/H	H	V IN 3



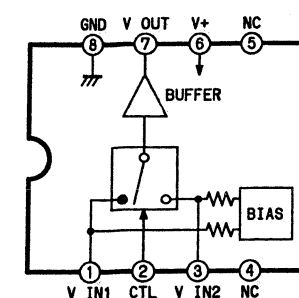
— MSM6967RS —  
CCD Delayline



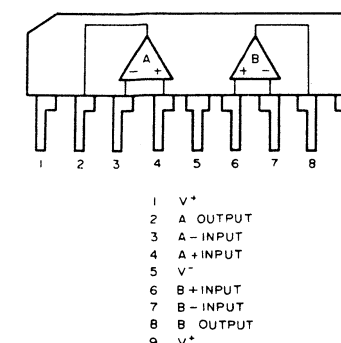
— MSC7112-01SS —  
VF Display Controller



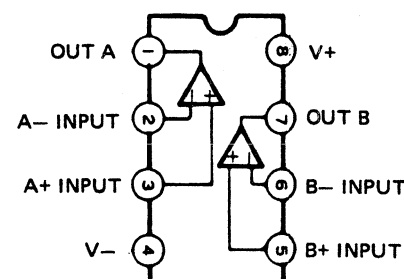
— NJM2233BD —  
Switching Bias Amp



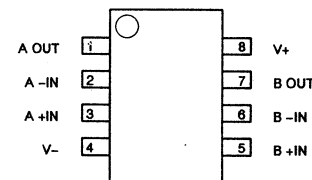
— NJM2903M —  
Dual Comparator



— NJM4560M —  
Dual Operation AMP



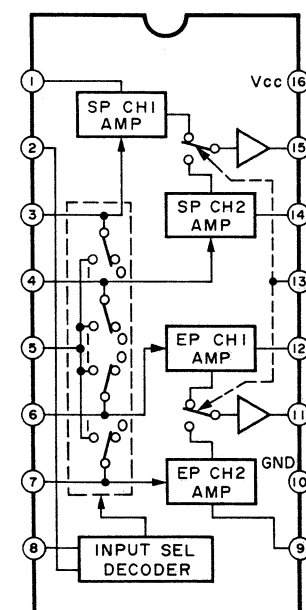
— NJM2904M —  
Dual Comparator



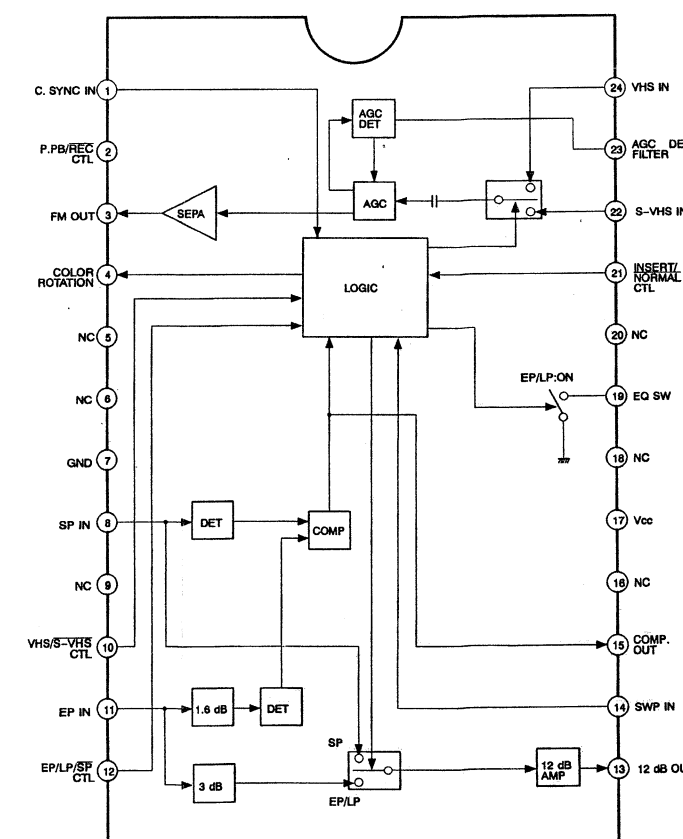
— TA78L009AP —  
Regulator



— TA8609P —  
4-ch PRE AMP(2-Head S-VHS)

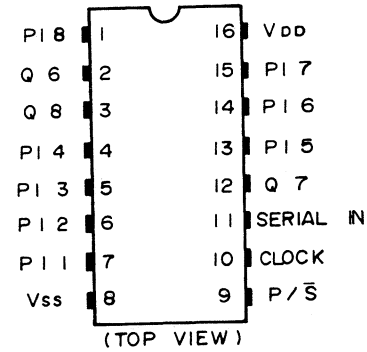


— TA8733F —  
FM Signal Processing Circuit



### — TC4021BP —

8-Stage Static Shift Register  
(Asynchronous Parallel Input or Synchronous Serial Input/Serial Output)



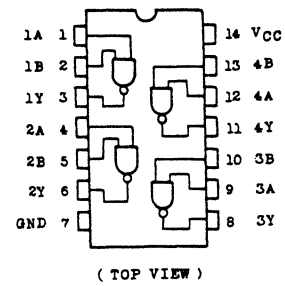
TRUTH TABLE

INPUTS						OUTPUTS $\Delta$	
CLOCK $\Delta$	P/S	PI <sub>1</sub>	PI <sub>n</sub>	SI	Q <sub>1</sub>	Q <sub>n</sub>	
	L	*	*	L	L	Q <sub>n-1</sub>	
	L	*	*	H	H	Q <sub>n-1</sub>	
	L	*	*	*	No Change		
*	H	L	L	*	L	L	
*	H	L	H	*	L	H	
*	H	H	L	*	H	L	
*	H	H	H	*	H	H	

n : 2 ~ 8  
 $\Delta$  : Q<sub>1</sub> ~ Q<sub>5</sub> Internal  
 $\Delta$  : Level  
 \* : Don't Care

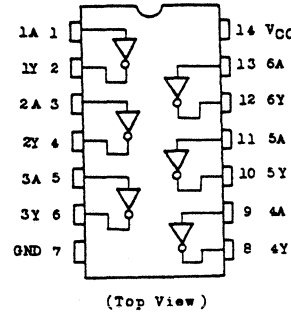
### — TC74HC00AF/AP —

Quad 2-Input NAND Gate



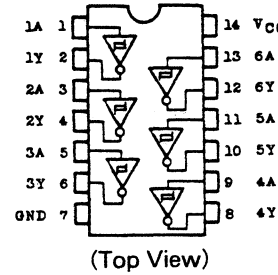
### — TC74HC04AF/AP —

Hex Inverter



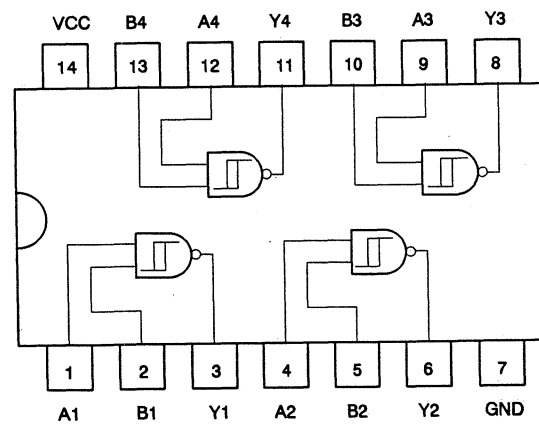
### — TC74HC14AP/AF —

Hex Schmitt Inverter



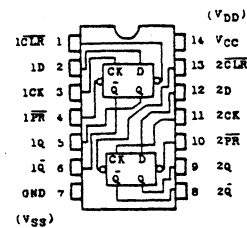
### — TC74HC132AF —

Quad 2-Input Schmitt NAND Gate



### — TC74HC74AP/AF —

Dual D Flip-Flop with Preset and Clear



TRUTH TABLE

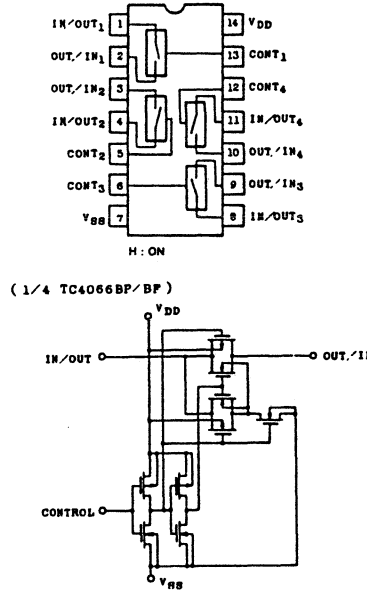
INPUTS				OUTPUTS		FUNCTION
CLR	PR	D	CK	Q	Q-bar	
L	H	*	*	L	H	CLEAR
H	L	*	*	H	L	PRESET
L	L	*	*	H	H	—
H	H	L		L	H	—
H	H	H		H	L	—
H	H	*	*	Q <sub>n</sub>	Q <sub>n</sub>	NO CHANGE

\* Don't care

A	B	Y
L	L	H
L	H	H
H	L	H
H	H	L

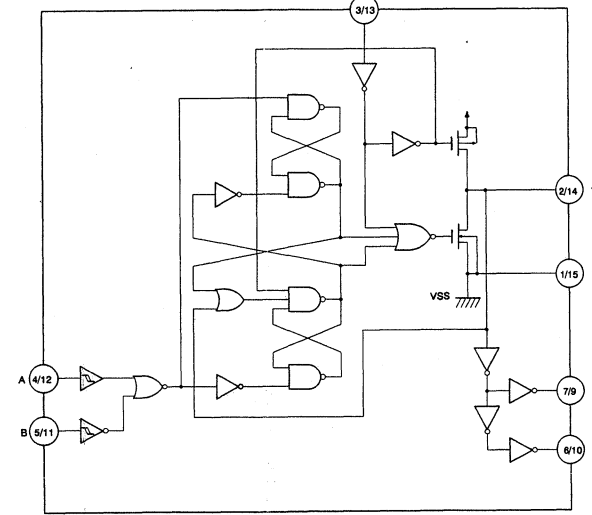
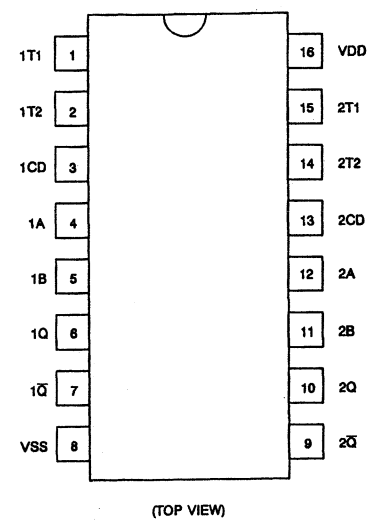
### — TC4066BP/BF —

Quad Bilateral Switch



### — TC4528BF —

Dual Monostable Multivibrator

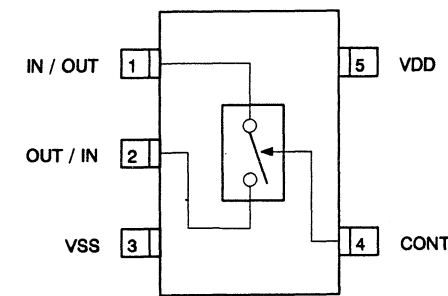


INPUT			OUTPUT		NOTE
A	B	CD	Q	Q-bar	
	H	H			OUTPUT PULSE
	L	H	L	H	INHIBIT
H		H	L	H	INHIBIT
L		H			OUTPUT PULSE
*	*	L	L	H	INHIBIT

\* : Don't Care

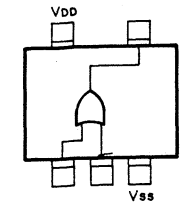
### — TC4S66F —

Bilateral Switch  
(TOP VIEW)



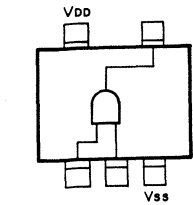
### — TC4S71F —

2-Input OR Gate



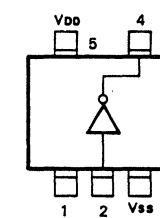
### — TC4S81F —

2-Input AND Gate



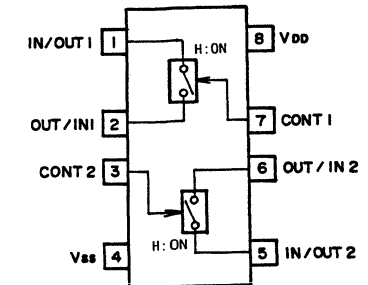
### — TC7S04F —

Inverter



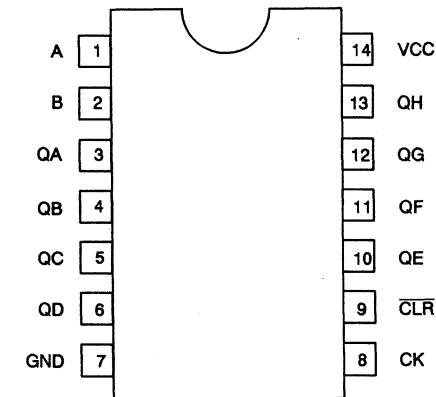
### — TC4W66F —

Dual Bilateral Switch



### — TC74HC164AF —

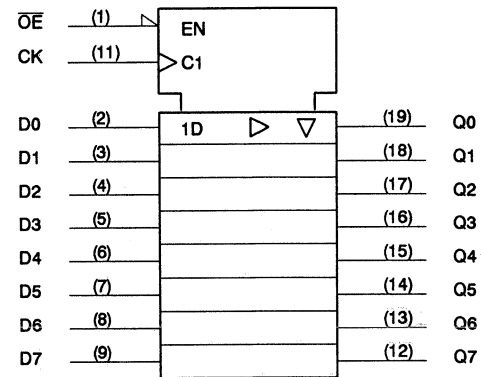
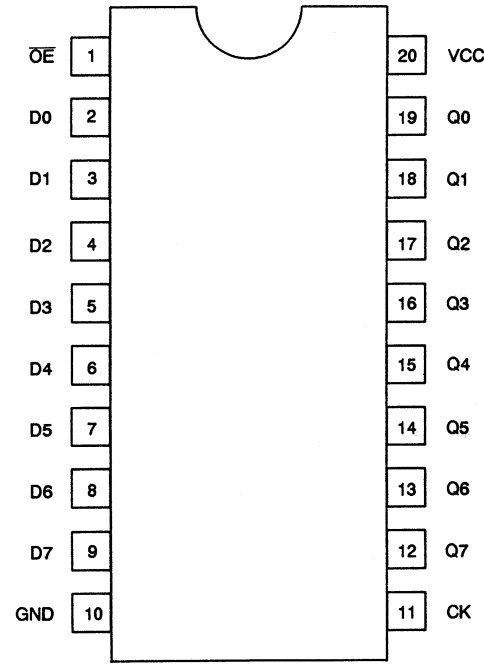
8-bit Shift Register



INPUTS				OUTPUTS			
CLR	CK	SERIAL IN		QA	QB	...	QH
		A	B				
L	X	X	X	L	L	...	L
H		X	X	NO CHANGE			
H		L	X	L	QAn	...	QGn
H		X	L	L	QAn	...	QGn
H		H	H	L	QAn	...	QGn

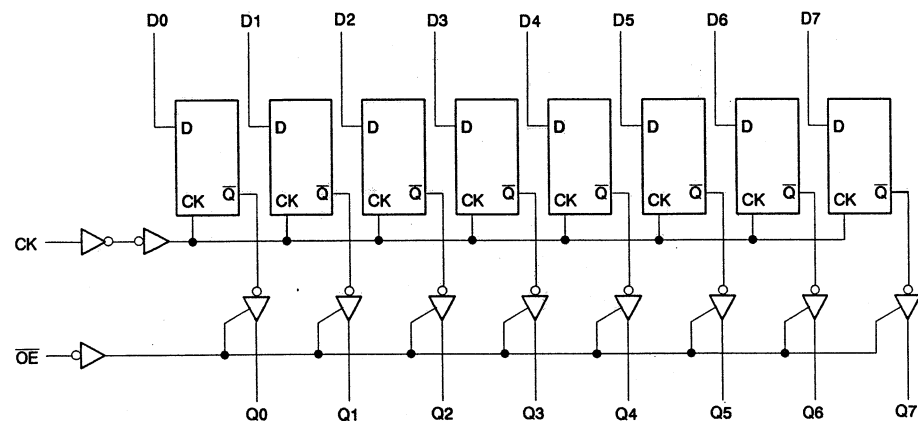
X : Don't Care

— TC74HC574AF —  
Octal D-Type Flip-Flop with 3-state Output

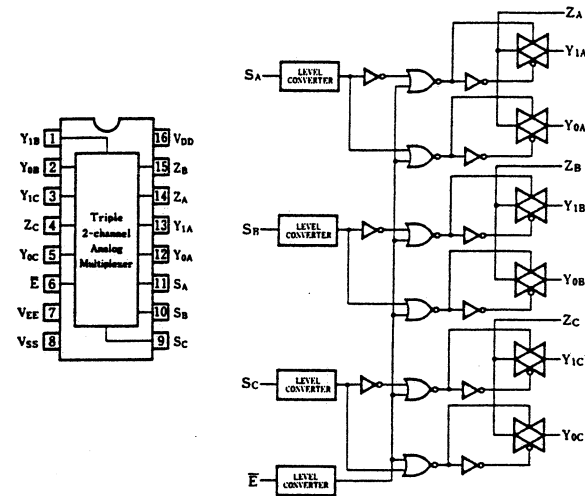


INPUT			OUTPUT
OE	CK	D	Q (564A)
H	X	X	Z
L	X	X	Qn
L	X	L	L
L	X	H	H

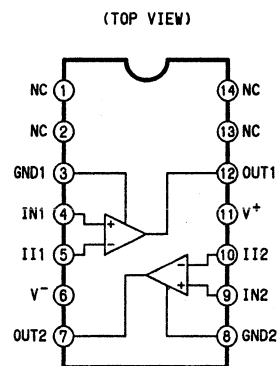
X : Don't Care  
Z : High-impedance



— TC74HC4053AF —  
Triple 2-ch Analog Switcher

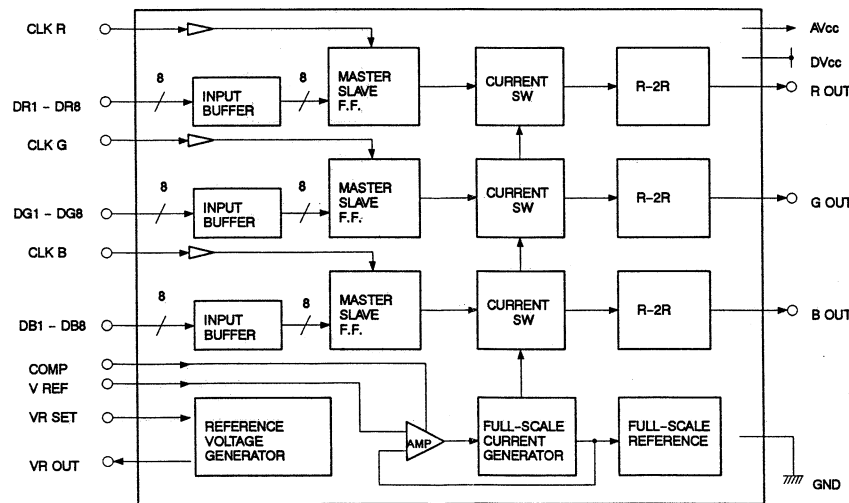
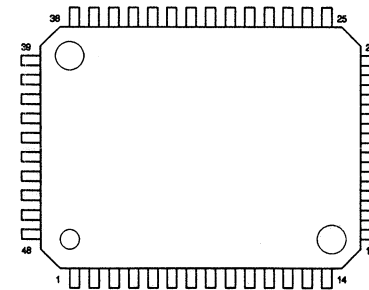


— UPC319G2 —  
Dual Comparator



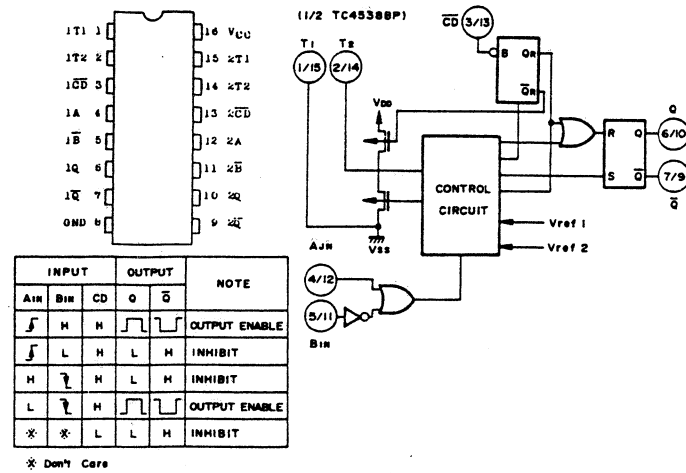
PIN NO.	PIN NAME	IN/OUT	PIN NO.	PIN NAME	IN/OUT
1	NC	-	25	NC	-
2	DG4	IN	26	VREF	IN
3	DG5	IN	27	VRES	IN
4	DG6	IN	28	BOUT	OUT
5	DG7	IN	29	GND	-
6	DG8	IN	30	GOUT	OUT
7	NC	-	31	GND	-
8	DB1	IN	32	NC	-
9	DB2	IN	33	ROUT	OUT
10	DB3	IN	34	GND	-
11	DB4	IN	35	AVCC	-
12	DB5	IN	36	DVCC	-
13	DB6	IN	37	DR1	IN
14	NC	-	38	NC	-
15	DB7	IN	39	DR2	IN
16	DB8	IN	40	DR3	IN
17	CLK-B	IN	41	DR4	IN
18	CLK-G	IN	42	DR5	IN
19	CLK-R	IN	43	DR6	IN
20	GND	-	44	DR7	IN
21	DVCC	-	45	DR8	IN
22	COMP	IN	46	DG1	IN
23	AVCC	-	47	DG2	IN
24	VROUT	OUT	48	DG3	IN

— UPC662GH —  
3-ch D/A Converter



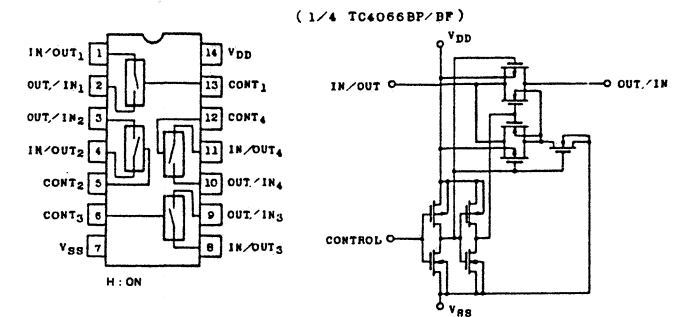
— TC74HC4538AF —

— Dual Precision Retriggerable/Resetable Monostable Multivibrator —

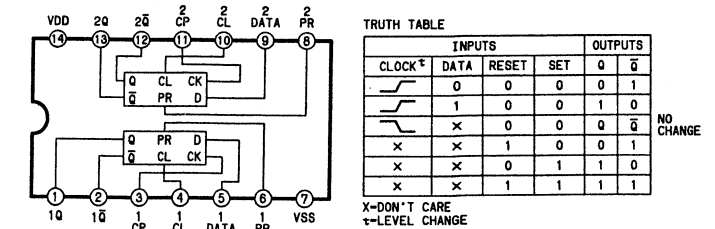


\* Don't Care

— TC74HC4066AF —  
Quad Bilateral Switch



— UPD4013BG —  
Dual D-Type Flip-Flop

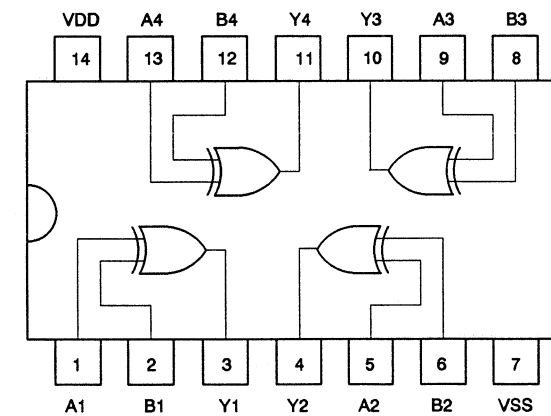


TRUTH TABLE

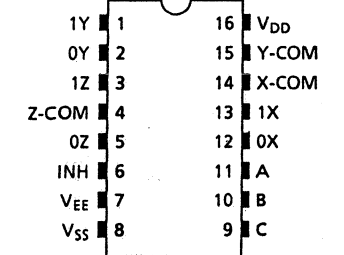
INPUTS				OUTPUTS	
CLOCK	DATA	RESET	SET	Q	Q
0	0	0	0	0	1
1	0	0	0	1	0
0	1	0	0	0	1
1	1	0	0	1	0
X	X	1	0	0	1
X	X	0	1	1	0
X	X	1	1	1	1

X=DON'T CARE  
t=LEVEL CHANGE

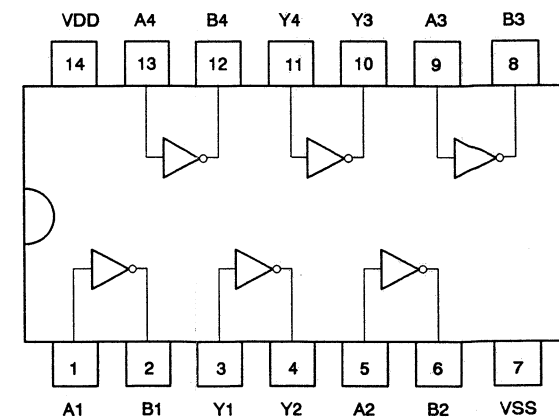
— UPD4030BG —  
Quad Exclusive OR Gate

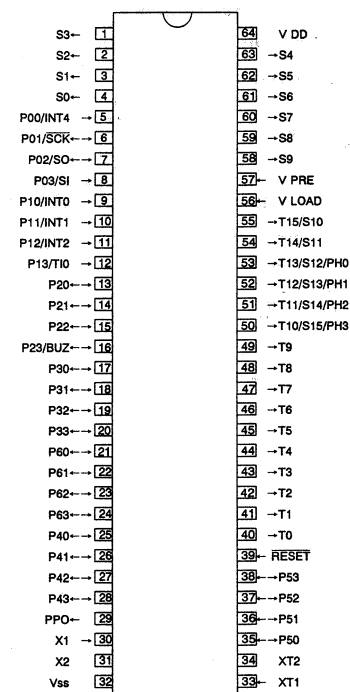


— UPD4053BG —  
Triple 2-ch Multiplexer/Demultiplexer



— UPD4069UBG —  
Hex Inverter

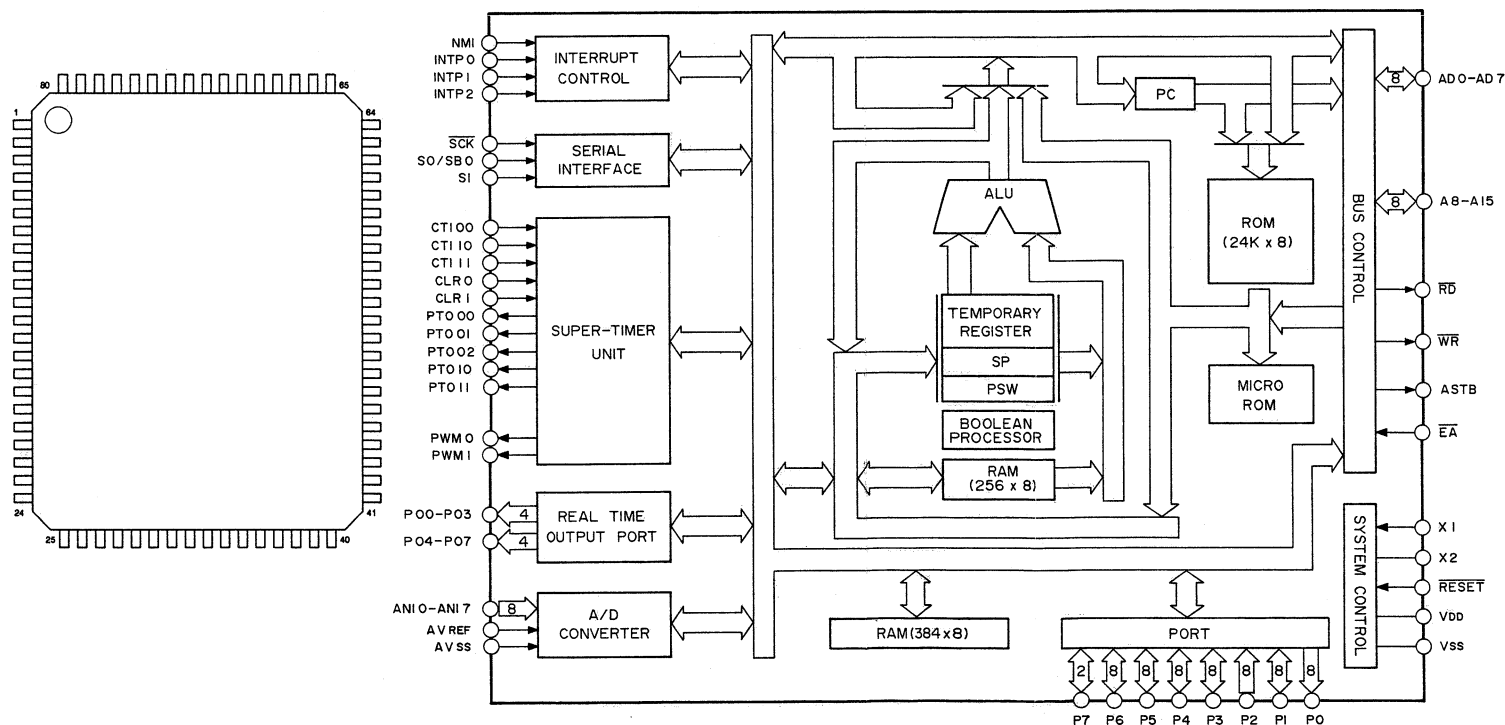




The block diagram illustrates the internal architecture of the 80C166 microcontroller. Key components include:

- Timers and Counters:** A BASIC INTERVAL TIMER, a TIMER/EVENT COUNTER #0, and a TIMER/PULSE GENERATOR are connected to various pins (P10/P13, PPO, P00).
- Memory:** ROM PROGRAM MEMORY (32640 x 8BITS) and RAM DATA MEMORY (1024 x 4BITS) are connected to the internal bus. A PROGRAM COUNTER (14) and a BANK are also shown.
- Processing:** An ALU (Arithmetic Logic Unit) is connected to a CY (Carry) flag and a SP(8) (Stack Pointer) register.
- Control and Status:** A DECODE AND CONTROL block, a GENERAL REG. (General Register), and an INTERRUPT CONTROL block are present.
- Serial Interface:** A SERIAL INTERFACE block is connected to SI/P03, SO/P02, and SCK/PO1 pins.
- External Connections:** The microcontroller has multiple ports (PORT 0 to PORT 6) and a FIP CONTROLLER / DRIVER. It also features a WATCH TIMER, CLOCK DIVIDER, SYSTEM CLOCK GENERATOR (SUB and MAIN), and a STAND BY CONTROL block.
- Power and Reset:** V<sub>DD</sub>, V<sub>SS</sub>, and RESET pins are shown at the bottom.


PIN NO.	PIN NAME	IN/OUT	PIN NO.	PIN NAME	IN/OUT
1	P34/CLR0	IN	41	P07	OUT
2	P35/SI	IN	42	P67	IN/OUT
3	P36/SO/SB0	IN/OUT	43	P66	IN/OUT
4	P37/SC/R	IN/OUT	44	P65/WR	IN/OUT
5	P20/NMI	IN	45	P64/RD	IN/OUT
6	P21/INTP0	IN	46	P63	OUT
7	P22/INTP1	IN	47	P62	OUT
8	P23/INTP2	IN	48	P61	OUT
9	P24/CTI0	IN	49	P60	OUT
10	P25/CTI00	IN	50	P57/A15	IN/OUT
11	P26/CTI11	IN	51	P56/A14	IN/OUT
12	P27/GLR1	IN	52	P55/A13	IN/OUT
13	P30/PTO00	IN/OUT	53	P54/A12	IN/OUT
14	P31/PTO01	IN/OUT	54	P53/A11	IN/OUT
15	P32/PTO02	IN/OUT	55	P52/A10	IN/OUT
16	P33/PTO11	IN/OUT	56	P51/A9	IN/OUT
17	PWM0	OUT	57	P50/A8	IN/OUT
18	PWM1	OUT	58	P47/A07	IN/OUT
19	A/vss	-	59	P46/A06	IN/OUT
20	A/vref	-	60	P45/A05	IN/OUT
21	ANIO	IN	61	P44/A04	IN/OUT
22	ANI1	IN	62	P43/A03	IN/OUT
23	ANI2	IN	63	P42/A02	IN/OUT
24	ANI3	IN	64	P41/A01	IN/OUT
25	AN4	IN	65	P40/A00	IN/OUT
26	AN5	IN	66	ASTB/CLO	OUT
27	AN6	IN	67	Vss	-
28	AN7	IN	68	EA	IN
29	RESET	IN	69	P10	IN/OUT
30	V00	-	70	P11	IN/OUT
31	X2	-	71	P12	IN/OUT
32	X1	IN	72	P13	IN/OUT
33	Vss	-	73	P14	IN/OUT
34	P00	OUT	74	P15	IN/OUT
35	P01	OUT	75	P16	IN/OUT
36	P02	OUT	76	P17	IN/OUT
37	P03	OUT	77	V00	-
38	P04	OUT	78	P70	IN/OUT
39	P05	OUT	79	P71	IN/OUT
40	P06	OUT	80	PTO10	OUT



## SECTION 5

### EXPLODED VIEWS AND PARTS LIST

#### SAFETY PRECAUTION

Parts identified by the  symbol are critical for safety.  
Replace only with specified part numbers.

	Page
5.1 STANDARD PART NUMBER CODING	
5.1.1 Screw coding . . . . .	5 - 2
5.1.2 Fuse coding . . . . .	5 - 3
5.2 EXPLODED VIEWS AND PARTS LIST	
5.2.1 Packing assembly . . . . .	5 - 3
5.2.2 Cabinet assembly . . . . .	5 - 4
5.2.3 Chassis assembly . . . . .	5 - 5
5.2.4 Mechanism (1) assembly . . . . .	5 - 6
5.2.5 Mechanism (2) assembly . . . . .	5 - 6

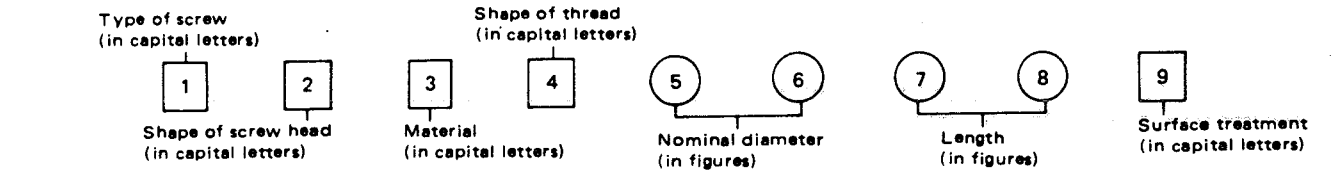
**Note:** " X " indicates quantity per set.



## 5.1 STANDARD PART NUMBER CODING

### 5.1.1 Screw coding

Standard screw part numbers are as follows.



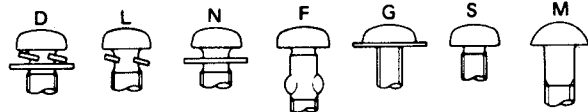
#### Type of screw (first digit)

- S Normal screws
- D Assembled machine screws (with plain and spring washers)
- L " (with spring washer)
- N " (with plain washer)
- F Feather screws
- G Washer head tapping screws
- M Wood screws

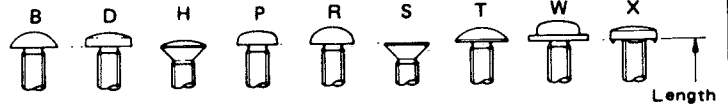
#### Shape of screw head (second digit)

- B Brazier head
- D Binding head
- H Oval countersunk head
- P Pan head
- R Round head
- S Flat head
- T Truss head
- W Washer head (machine screws)
- X Toothed head

#### - Type of screw (first digit) -



#### - Shape of screw head (second digit) -



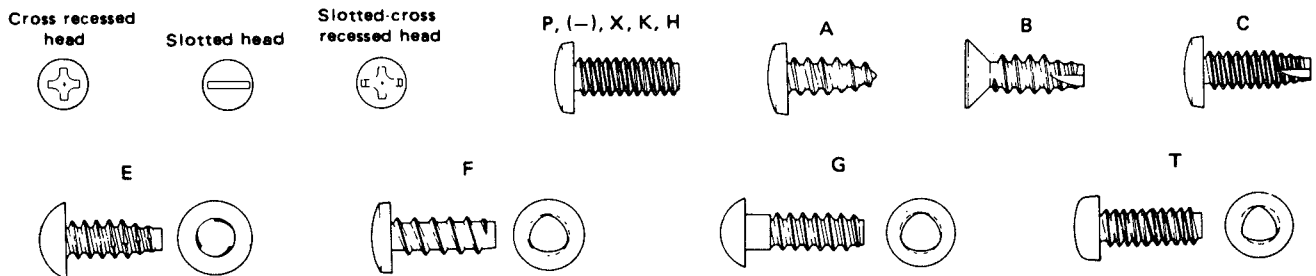
#### Material (third digit)

- S Steel
- E Stainless steel
- C Cast iron
- U Copper
- B Brass
- P Phosphor bronze
- N Nickel silver
- Y Cast brass
- A Aluminum
- Z Zinc alloy
- K Polycarbonate

#### Shape of thread (fourth digit)

- P Cross recessed head screws
- (-) Slotted head machine screws
- X Slotted-cross recessed head machine screws
- K Cross recessed head machine screws for precision equipment (type 1)
- H " (type 3)
- A Cross recessed head tapping screws (type 1)
- B " (type 2)
- C " (type 3)
- E Cross recessed head special tapping screws (brand : evertight)
- F " (brand : P-tight)
- T " (brand : taptight)
- G " (brand : taptight)

#### - Shape of thread (fourth digit) -



#### Nominal diameter (fifth and sixth digits)

The fifth and sixth digits are numbers indicating a nominal diameter or dimension. If the number exceeds 10 mm, three digits are used. The number indicates a nominal diameter or dimension, given in millimeters, multiplied by ten.

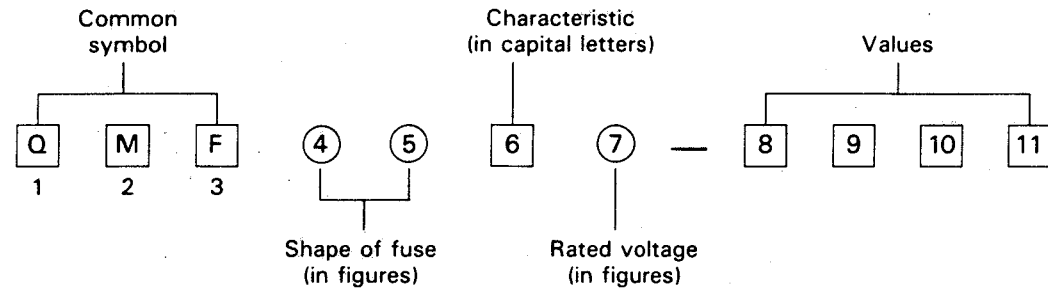
#### Length (seventh and eighth digits)

The seventh and eighth digits are numbers indicating length in millimeters. The preceding figure is zero when the dimension is smaller than 10 mm. For machine screws used in precision equipment whose length is given in units of 0.1 mm, the number indicates ten times the size of their length.

#### Surface treatment (ninth digit)

- Z Dichromate treatment after galvanizing (MFZn II-C)
- N Nickel plating (MFNi II, MFNi I)
- R Chromium plating (MBCr II, MBCr I)
- G Silver plating (SP4)
- B Black coating after plating
- F Blackening of iron (FB)
- M Blackening after galvanizing
- K Pickling of brass (PF2)
- P Phosphate treatment
- W Uni-chrome plating
- L Coating with transparent paint
- A Coloring red after galvanizing (MFZn II-C)
- C Coloring blue after galvanizing (MFZn II-C)
- T Coloring green after galvanizing (MFZn II-C)
- V Coloring purple after galvanizing (MFZn II-C)

**Standard fuse part numbers are as follows.**



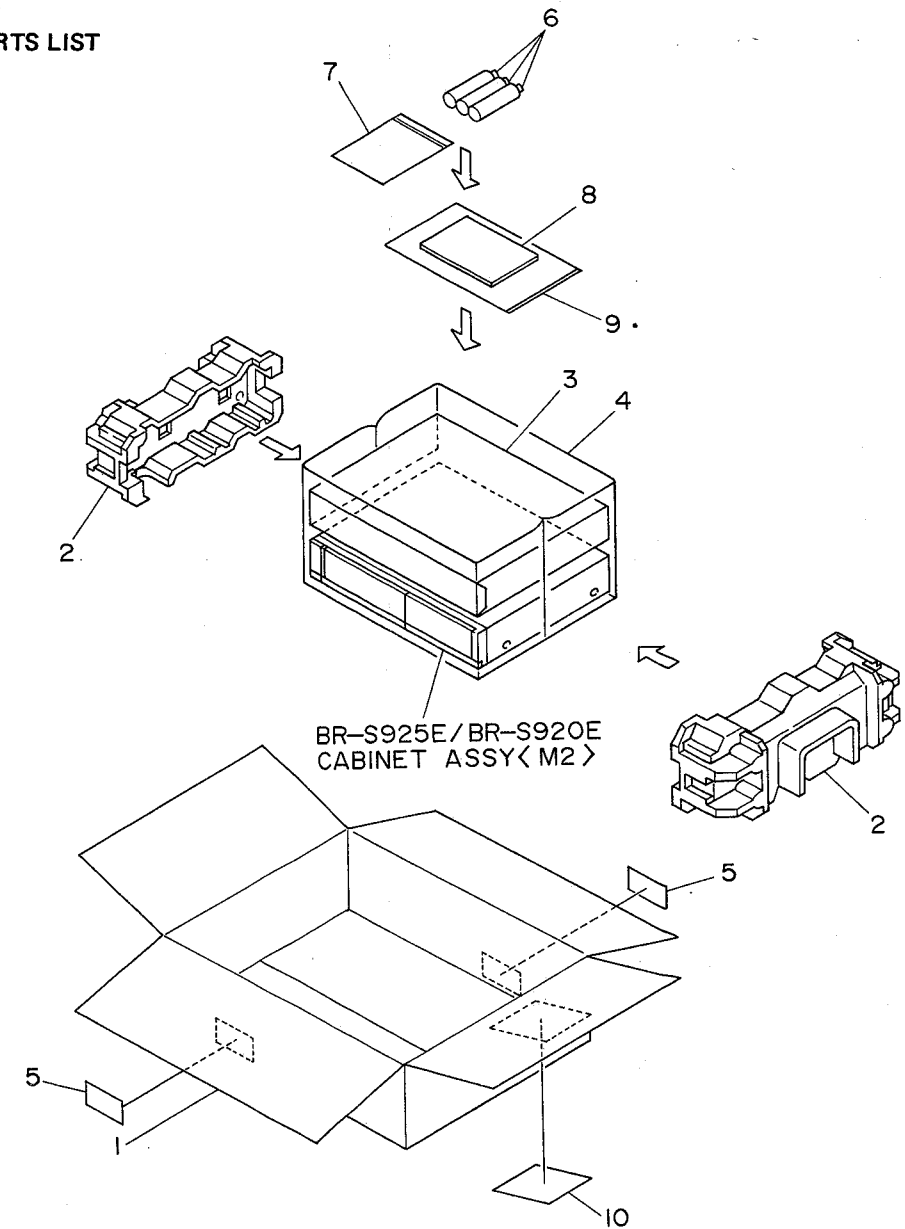
Shape of fuse (fourth and fifth digits)	Rated voltage (seventh digit)	Values (eighth-tenth or eleventh digits)
51 $\phi 5.2 \times 20$ mm	1    AC 125 V	example:
60 $\phi 6.4 \times 30$ mm	2    AC 250 V	R63    ..... 0.63 A
61 $\phi 6.35 \times 31.8$ mm	3    0.1—1 A : AC 250 V	1R0    ..... 1.0 A
63 $\phi 6.4 \times 30$ mm with lead wires	1.25—6.3 A : AC 125 V	2R5    ..... 2.5 A
66 $\phi 6.35 \times 31.8$ mm with lead wires		100    ..... 10 A
00    Special type		R315    ..... 0.315 A
		1R25    ..... 1.25 A

**Characteristics (sixth digit)**

Symbol	Fusing Current	Fusing Time	Remarks
A	210 %	Within 2 min.	Anti-rush type (for Europe)
	275 %	0.6 — 10 sec.	
	400 %	0.15 — 3 sec.	
	1000 %	0.02 — 0.3 sec.	
B	210 %	Within 30 min.	Regular fusible type (for SEMKO, Europe)
	275 %	0.05 — 2 sec.	
	400 %	0.01 — 0.3 sec.	
C	135 %	Within 1 hr.	Regular fusible type (for UL, Japan)
	200 %	Within 2 min.	
E	210 %	Within 2 min.	Anti-rush type (for Europe)
	275 %	0.6 — 10 sec.	
	400 %	0.15 — 3 sec.	
	1000 %	0.02 — 0.3 sec.	
J	135 %	Within 1 hr.	Anti-rush type
	200 %	Within 2 min.	
M	135 %	Within 1 hr.	Regular fusible type (for UL)
	200 %	Within 2 min.	
R	160 %	Within 1 hr.	Regular fusible type
	200 %	Within 2 min.	
S	160 %	Within 1 hr.	Anti-rush type
	200 %	Within 2 min.	
	700 % — 2000 %	Within 0.01 sec.	
U	135 %	Within 1 hr.	Anti-rush type (for UL)
	200 %	Within 2 min.	
	800 % — 2000 %	Within 0.01 sec.	

## 5.2 EXPLODED VIEWS AND PARTS LIST

### 5.2.1 Packing assembly <M1>



When Shipped from the factory the switches and VR's are set as shown below tables.

- FRONT PANEL

NAME	OPSION
AUTO REC SW	OFF
VISS SW	OFF
ALARM REC SW	OFF
COUNTER MEMORY SW	OFF
REPEAT REC/PLAY SW	OFF
VIDEO MODE SW	AUTO
REMOTE SW	LOCAL
INPUT SELECT SW	LINE
SHARPNESS VR	CENTER
ON SERRN BRIGHT VR	CENTER

- REAR PANEL

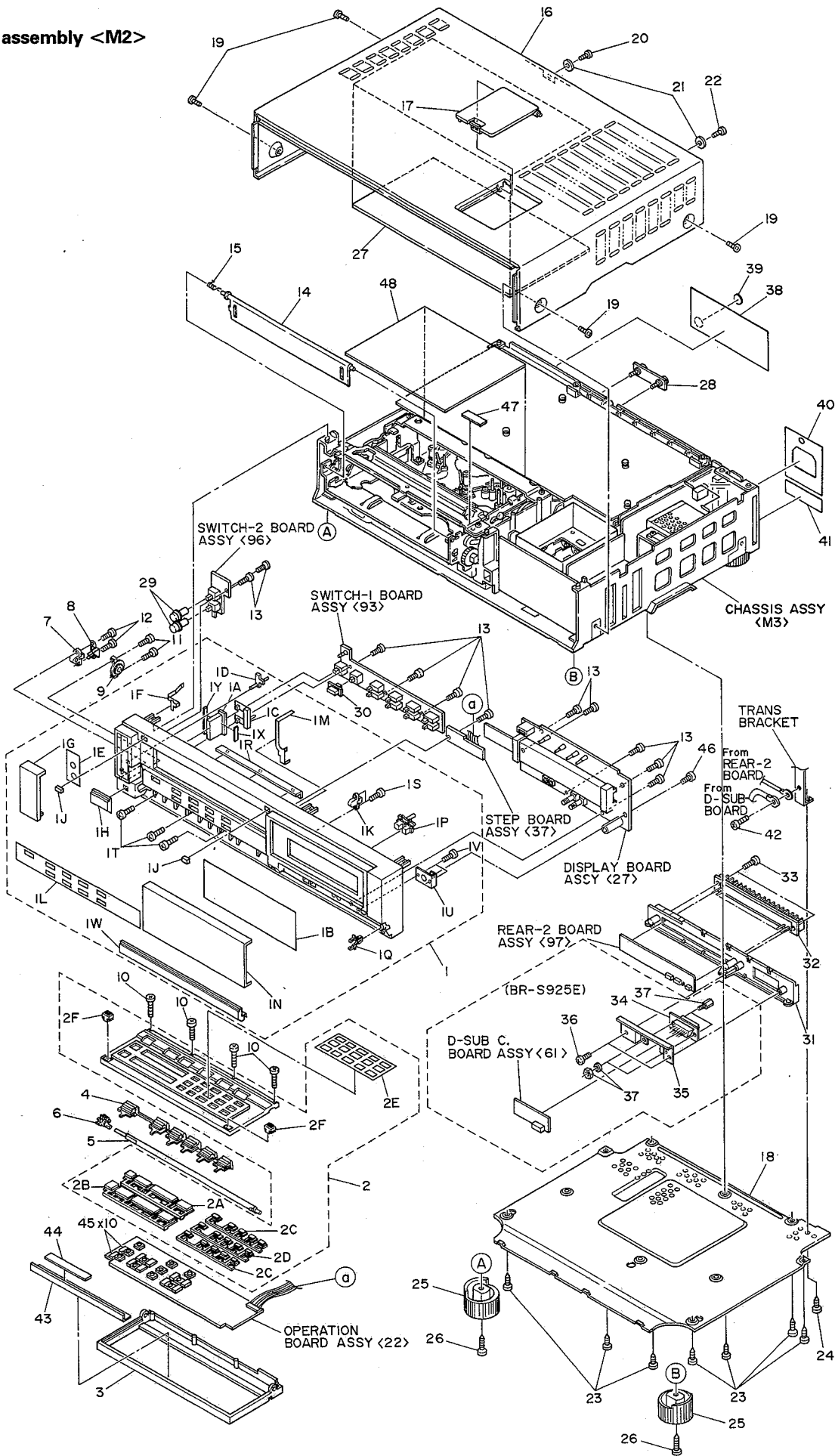
NAME	POSITION
V. PULSE SW	OFF

```
#△ REF NO. PART NAME, DESCRIPTION
```

---

```
*****  
*****  
*****  
*          1. PACKING ASSEMBLY <M1>          *  
*****  
  
1          PRD20162-12      PACKING CASE (BR-S925E)  
           PRD20162-13      PACKING CASE (BR-S920E)  
2          PQ32590A-1       CUSHION ASSY  
3          PU5777           WADDING PAD  
4          PQM30021-70       POLY BAG  
5          PRD43892-02       LABEL(PACKING),X2  
6          UM-3DJ2P          BATTERY,X3  
7          QPGB005-00704     POLY BAG  
△ 8          PGD30002-272    INSTRUCTIONS  
9          QPGA025-03505     POLY BAG  
10         PRD30913          LABEL(ACC.)
```

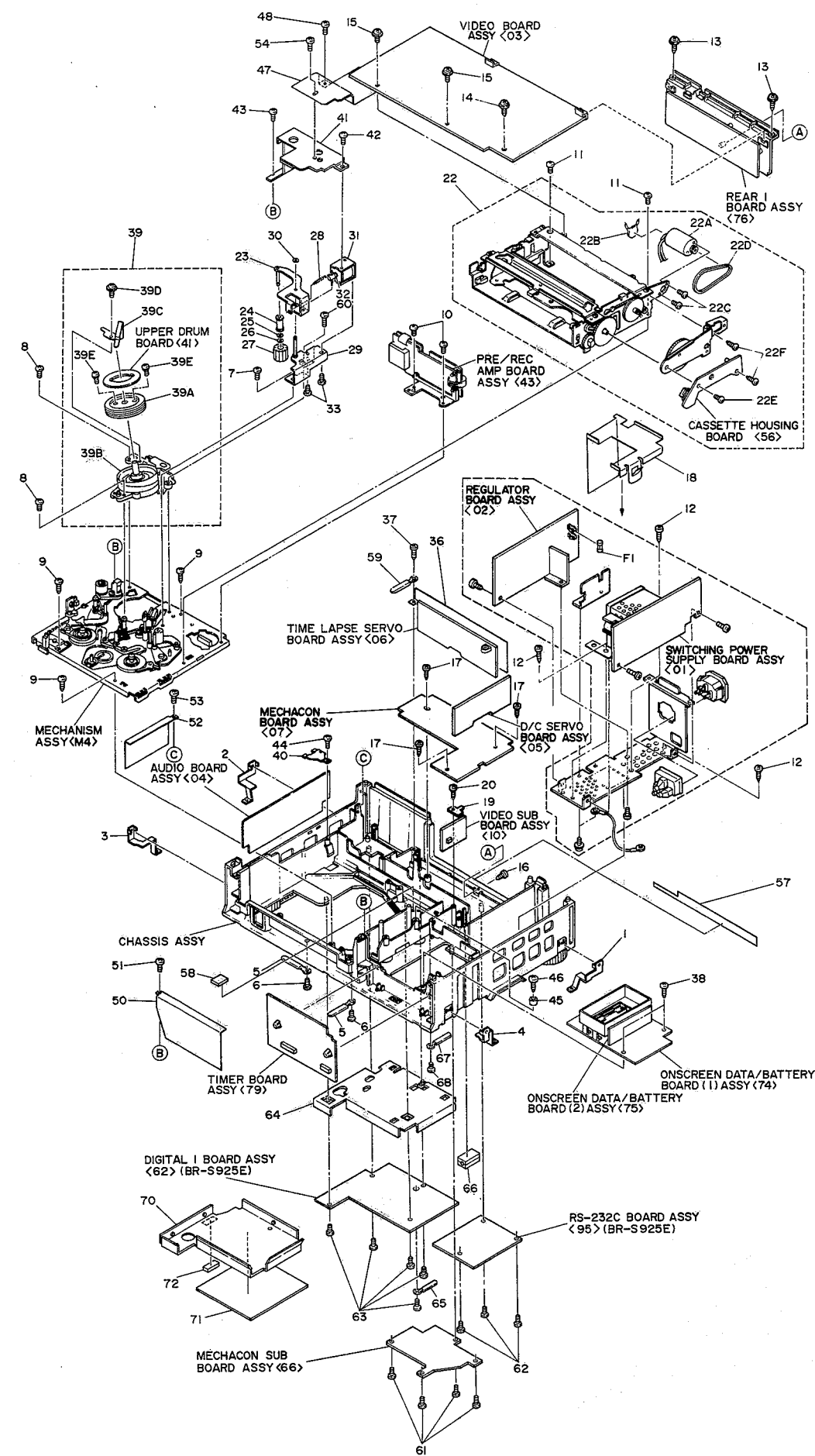
5.2.2 Cabinet assembly <M2>



#	REF NO.	PART NO.	PART NAME, DESCRIPTION
*****			
***** 2. CABINET ASSEMBLY <M2> *****			
*****			
1	PRD10266A-04	FRONT PANEL ASSY, BR-S925E	
1A	PRD10266B-04	FRONT PANEL ASSY, BR-S920E	
1B	PQ32347-4	BUTTON (POWER)	
1C	PQ32499-16	DISPLAY SHEET, BR-S925E	
1D	PQ32499-17	DISPLAY SHEET, BR-S920E	
1E	PQ43395	HINGE (POWER)	
1F	PQ43394	IND (POWER)	
1G	PQ43486-7	PLATE (JACK)	
1H	PQ43487	EARTH PLATE	
1I	PQ32351-13	COVER (JACK)	
1J	PQ32348-7	COVER	
1K	PQ43363	PLATE (MAGNET), X2	
1L	PQ43467	HOLDER	
1M	PRD30832A-02	PLATE ASSY, BR-S925E	
1N	PRD30832B-02	PLATE ASSY, BR-S920E	
1O	PQ32395-1-2	EARTH PLATE	
1P	PQ32485	DISPLAY WINDOW	
1Q	PQ43455-5	BUTTON (TR)	
1R	PU60109	CATCHER	
1S	PQ32571	PLATE (FRONT)	
1T	SDSF2608Z	SCREW, X2	
1U	SDSG2606Z	SCREW, X3	
1V	PRD43735	BRACKET (PWB)	
1W	SDSF2006Z	SCREW, X2	
1X	PRD30829A-01	DOOR ASSY (SUB)	
1Y	PRD30030-82	PAD	
2	PRD30030-83	PAD	
2A	PRD20401A-03	DOOR (UPPER) ASSY, BR-S925E	
2B	PRD20401B-03	DOOR (UPPER) ASSY, BR-S920E	
2C	PRD30830-01-01	BUTTON (1)	
2D	PRD30830-02-01	BUTTON (1)	
2E	PRD30831-01-01	BUTTON (2), X2, BR-S925E	
2F	PRD30831-03-01	BUTTON (2), X2, BR-S920E	
3	PRD30831-04-01	BUTTON (2), BR-S920E	
4	PRD30831-02-01	BUTTON (2), BR-S925E	
5	PRD30844-02-01	SHEET (DOOR), BR-S920E	
6	PRD30844-01-01	SHEET (DOOR), BR-S925E	
7	PU59891-2	MAGNET, X2	
8	PRD20403A-01	DOOR (LOWER) ASSY, BR-S925E	
9	PRD20403B	DOOR (LOWER) ASSY, BR-S920E	
10	PRD30834	BUTTON (3)	
11	PQ32362-1-2	SHAFT	
12	PQ43470	GEAR	
13	PQ43467	HOLDER	
14	PQ43704-1-1	SPRING	
15	PU60527	DAMPER UNIT	
16	SPSF2008M	SCREW, X4	
17	SDSF2010Z	SCREW, X2	
18	SDSF2608Z	SCREW, X2	
19	SDSF2608Z	SCREW, X11	
20	PRD30701	CASSETTE HOUSING DOOR	
21	PQ42410-1-1	TORSION SPRING	
22	PRD10170	TOP COVER	
23	PRD30555	PRESET DOOR	
24	PQ10706-1-4	BOTTOM COVER	
25	PGD30030-07	SCREW, X4	
26	SDSF3010R	SCREW	
27	WBS3000N	WASHER, X2	
28	SDST3006R	SCREW	
29	SDSF3008Z	SCREW, X7	
30	DPSP3006Z	SCREW, BR-S920E	
31	DPSP3008Z	SCREW, BR-S925E	
32	PQ43703A-1	FOOT ASSY, X2	
33	SDSF3012Z	SCREW, X2	

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
27	PRD30030-78	PAD	
28	PRD43080C	PLATE ASSY	
29	PRD43705	BUTTON (RND), X2	
30	PRD43706	BUTTON (SQR)	
31	PRD20398	TERMINAL 2 BOARD, BR-S925E	
32	PRD20398-02	TERMINAL 2 BOARD, BR-S920E	
33	PGZ01653-18	TERMINAL	
34	SDSF3014M	SCREW, X2	
35	PGZ01205	25P CONNECTOR, BR-S925E	
36	PRD43707	BRACKET (25P), BR-S925E	
37	SDSF2606Z	SCREW, X2 BR-S925E	
38	PGZ00925-02	SCREW, X2 BR-S925E	
39	PRD30085	RATING LABEL, BR-S920E	
40	PRD30085-02	RATING LABEL, BR-S925E	
41	-	SEMKO LABEL	
42	PRD42735-01-02	REAR SHEET	
43	PU47397	STICKER	
44	SDST3006Z	SCREW	
45	PRD43981	PLATE	
46	PRD30030-80	PAD	
47	PRD30030-79	PAD	
48	SDST2605Z	SCREW	

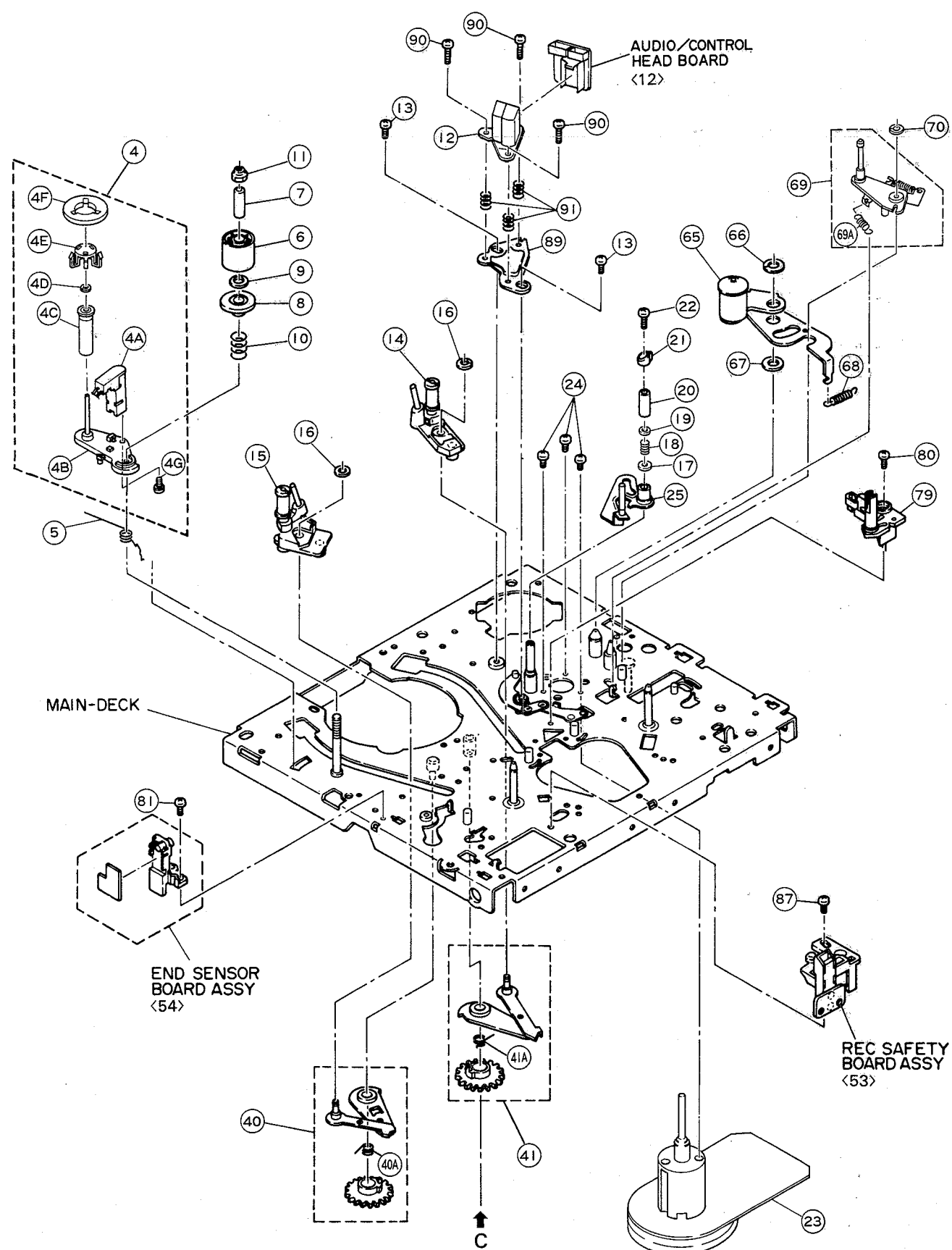
5.2.3 Chassis assembly <M3>



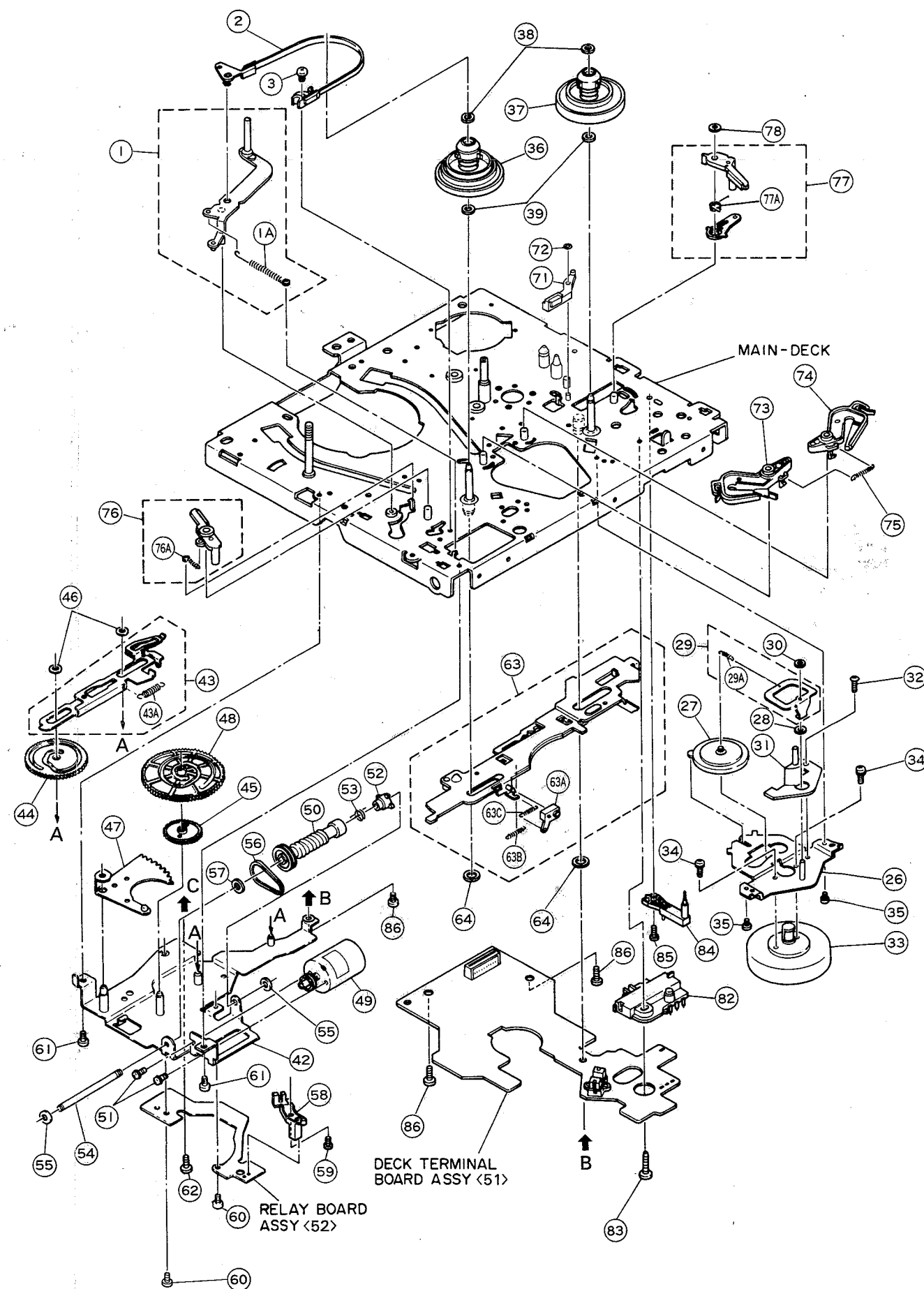
#	REF NO.	PART NO.	PART NAME, DESCRIPTION
*****			
***** 3. CHASSIS ASSEMBLY <M3> *****			
*****			
	2200052	PU49485-4	WIRE CLAMP
1		PQ32783	EARTH PLATE
2		PRD30894	EARTH PLATE
3		PRD30893-02	EARTH PLATE
4		PRD30893	EARTH PLATE
5		PU49485	WIRE CLAMP, X2
6		SDSP3008Z	SCREW, X2
7		SDST2605Z	SCREW
8		SDSP2608Z	SCREW, X2
9		PQ43831-2	SPECIAL SCREW, X3
10		SDST2605Z	SCREW, X2
11		SDST2605Z	SCREW, X2
12		PQ43831-2	SPECIAL SCREW, X3
13		GPSF2610Z	SCREW, X2
14		GPSF2610Z	SCREW
15		PQ44003	SCREW, X2
16		SDSF3010M	SCREW
17		SDSF3008Z	SCREW, X3
18		PQ32578	COVER (AC)
19		PQ43714	BRACKET (FE)
20		SDSF3008Z	SCREW
22		PGS20693B-04	CASSETTE HOUSING ASSY
22A		PQ42385A	CASSETTE MOTOR ASSY
	OR	PQ42385B	CASSETTE MOTOR ASSY
22B		DV710SR223M16	VARIATOR
22C		SPSP2603Z	SCREW, X2
22D		PQM30003-19	BELT
22E		SPSP2604Z	SCREW
22F		SPST2605Z	SCREW, X2
23		PRD42486A-02	CLEANER ARM ASSY
24		PRD42664	CLEANER ARM ASSY
25		Q03093-829	WASHER
26		PQM30017	SLIT WASHER
27		PRD40510-01-02	CLEANER
28		PRD30024-42	SPRING
29		PRD42487A-02	CLEANER BASE ASSY
30		PQM30017	SLIT WASHER
31		PU59401-2	SOLENOID
32		PQM30002-187	COMPRESSION SPRING
33		LPSP2003Z	SCREW, X2
36		PRS30024-02	SHIELD PLATE
37		SDSF3008Z	SCREW
38		SDSF3008Z	SCREW, X2
39		PDV2277A	DRUM ASSY
39A		PDM2170C	UPPER DRUM ASSY
39B		PRD20415A	LOWER DRUM MOTOR ASSY
39C		PDM4015B	BRUSH ASSY
39D		LPSP2606Z	SCREW
39E		PDM4165A	DRUM SCREW ASSY, X2
40		PRD42967	PWB BKT
41		PRD43144A-02	DRUM COVER ASSY
42		PRD43990	SCREW
43		SDST2606Z	SCREW
44		SDSF3008Z	SCREW
45		PRD43094	SPACER
		PRD30030-79	PAD
46		SDSF2608Z	SCREW
47		PRS40023	SHIELD PLATE
48		SDSF3008Z	SCREW
50		PRS40016	SHIELD PLATE

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
51		SDSF2608Z	SCREW
52		PRS40015	SHIELD PLATE
53		SDSF3008Z	SCREW
54		SBST3006Z	SCREW
57		PQ32566-6	PLATE
		PQ32566-7	PLATE
58		PRD30030-52	PAD
59		PU49485-4	WIRE CLAMP, X2
60		SDSP2610Z	SCREW
61		SDSF3008Z	SCREW, X4
62		SDSF3008Z	SCREW, X3, BR-S925E
63		SDSF3008Z	SCREW, X4, BR-S925E
64		PRS20008-01-02	SHIELD CASE, BR-S925E
65		PU49485-4	WIRE CLAMP, BR-S925E
66		PGZ01769-04	FERRITE CORE, BR-S925E
67		PU49485-4	WIRE CLAMP, BR-S925E
68		SDSF3008Z	SCREW, BR-S925E
70		PRS20009	SHIELD CASE, BR-S925E
71		PRD30030-84	PAD, BR-S925E
72		PRD30030-81	PAD, BR-S925E

#### 5.2.4 Mechanism assembly (1) < M4 >



### 5.2.5 Mechanism assembly (2) < M4 >



#	REF NO.	PART NO.	PART NAME, DESCRIPTION
*****			
*****			
* 4. MECHANISM ASSEMBLY <M4> *			
*****			
1		PQ43710A	TENSION ARM ASSY
1A		PQ41952-5	SPRING
2		PRD43319A	TENSION BAND ASSY
3		SDST2606Z	SCREW
4		PQ43330C	FULL ERASE HEAD ASSY
4A		PU60646	FULL ERASE HEAD
4B		PQ43299B	FULL ERASE HEAD SUB ASSY
4C		PQ43837A	ROLLER ASSY
4D		PQM30017-25	SLIT WASHER
4E		PQ32776	CAPACITOR
4F		PQ43836	RING
4G		LPSP2004Z	SCREW
5		PQ41954-1-1	TORSION SPRING
6		PQ41955	IMPEDANCE ROLLER
7		PRD42512	COLLAR
8		PQ41957	LOWER FLANGE
	OR	PQ42958	LOWER FLANGE
9		PQM30018-39	SPACER
	OR	PQM30018-50	SPACER
10		PQM30002-124	COMPRESSION SPRING
11		PQ40353	NYLON NUT
12		PU60560-2	AUDIO/CONTROL HEAD
13		PRD30027-04	SCREW, X2
14		PGZ01351	POLE BASE ASSY(TAKE-UP)
15		PGZ01350	POLE BASE ASSY(SUPPLY)
16		PQM30017-5	SLIT WASHER, X2
17		WNS3000N	WASHER
18		PRD30023-30	COMPRESSION SPRING
19		PRD42998-01-01	GUIDE FLANGE
20		PU53629-3	TAPE GUIDE
21		PRD42612	GUIDE POLE CAP
22		PRD43165	SPECIAL SCREW
23		PGZ01300	CAPSTAN MOTOR
24		SPSP2605N	SCREW, X3
25		PRD43100A	HALF LOADING ARM ASSY
26		PQ41974A-3	REEL MOTOR BRACKET ASSY
27		PU58645-1-4	IDLER ARM
28		Q03093-834	WASHER
29		PQ41976A-1	SPRING ARM ASSY
29A		PQ42212-1-4	SPRING
30		PQM30017-22	SLIT WASHER
31		PQ41978	HOLDER
32		SPST2606Z	SCREW
33		PGZ01332	REEL MOTOR
34		LPSP2604Z	ASSY SCREW, X2
35		SPST2606Z	SCREW, X2
36		PU59250-1-2	REEL DISK (SUPPLY)
37		PU58638-1-2	REEL DISK (TAKE-UP)
38		PQM30017-5	SLIT WASHER, X2
39		Q03093-828	WASHER, X2
40		PQ41979A-5	LOADING ARM ASSY (SUPLY)
40A		PQ42677	TORSION SPRING (SUPPLY)
41		PQ41985B-3	LOADING ARM ASSY (TAKE-UP)
41A		PQ41990	TORSION SPRING(TAKE-UP)
42		PQ42973A	CAM BRACKET ASSY
43		PQ42974A	SLIDE CAM PLATE ASSY
43A		PQM30001-224	SPRING
44		PQ31677	HALF LOADING CAM
45		PQ42963	SECOND GEAR
46		PQM30017-24	SLIT WASHER, X2
47		PQ41994A-3	ARM GEAR ASSY
48		PQ20428	CONTROL CAM
49		PQ41996B	MODE MOTOR ASSY
	OR	PQ41996C	MODE MOTOR ASSY

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
50		PQ41998A	WORM ASSY
51		LPSP2604Z	ASSY SCREW, X2
52		PQ42001	WINDMILL
53		PRD43278	CLUTCH SPRING
54		PQ42003	WORM SHAFT
55		PQM30017-5	SLIT WASHER, X2
56		PQM30003-20	BELT
57		PQM30018-22	SPACER
58		PU61088	REEL SENSOR (SUPPLY)
59		LPSP2604Z	ASSY SCREW
60		SPST2606Z	SCREW, X2
61		SPST2606Z	SCREW, X2
62		LPSP2604Z	ASSY SCREW
63		PQ42038E	PLATE ASSY
63A		PQ31044-1-2	LOCK LEVER
63B		PQM30001-223	TENSION SPRING
63C		PQM30001-211	TENSION SPRING
64		PQM30017-28	SLIT WASHER, X2
65		PQ42006B-5	PINCH ROLLER ARM ASSY
66		PQM30017-28	SLIT WASHER
67		Q03093-833	WASHER
68		PQM30001-229	TENSION SPRING
69		PQ32676A	GUIDE ARM ASSY
69A		PQ42029	SPRING
70		PQM30017-6	SLIT WASHER
71		PQ43778A	REVERSE BRAKE ASSY
72		PQM30017-22	SLIT WASHER
73		PQ42019B-6	MAIN BRAKE ASSY (SUPPLY)
74		PQ42020B	MAIN BRAKE ASSY (TAKE-UP)
75		PQM30001-216	TENSION SPRING
76		PQ42021A-3	SUB BRAKE ASSY (SUPPLY)
76A		PQ42023-1-2	TENSION SPRING
77		PQ42037A-2	SUB BRAKE ASSY (TAKE-UP)
77A		PQ42028-1-1	TORSION SPRING
78		PQM30017-6	SLIT WASHER
79		PU59925-1-1	LED HOLDER
80		SPST2606Z	SCREW
81		SPST2606Z	SCREW
82		PU59924	SLIDE ENCORDER
83		SDSP2610Z	SCREW
84		PU59919-1-1	CASSETTE SWITCH
85		SDST2608Z	SCREW
86		SDSP2606Z	SCREW, X3
87		SDST2606Z	SCREW
89		PQ42984-2	HEAD BASE
90		PQ43687A	SCREW, X3
91		PU30080-49	SPRING, X3





## SECTION 6 ELECTRICAL PARTS LIST

### SAFETY PRECAUTION

Parts identified by the  $\triangle$  symbol are critical for safety. Replace only with specified part numbers.

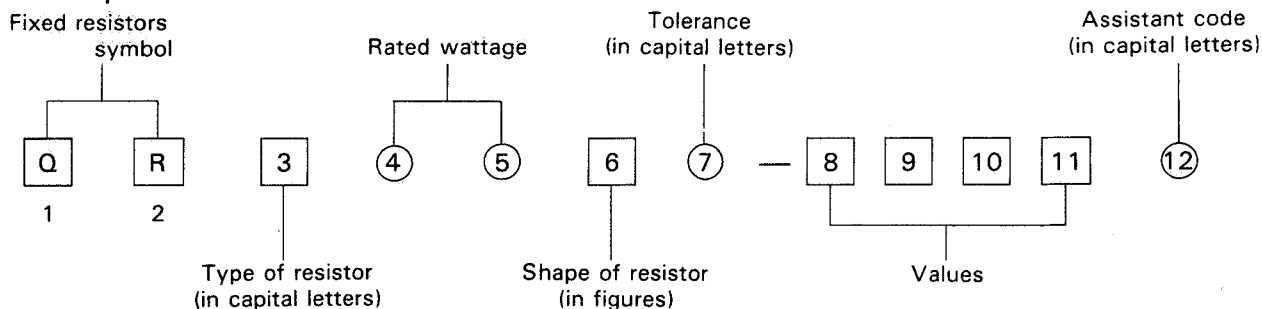
#### NOTES:

- [M ] indicates mechanical symbol number.
- [2 digits] indicates circuit board symbol number.
- "X " indicates quantity per set.

### 6.1 STANDARD PART NUMBER CODING

#### 6.1.1 Fixed resistor coding

Fixed resistor part numbers are as follows.



Type of resistor (third digit)	Rated wattage (fourth and fifth digits)	Tolerance (seventh digit)	Assistant code (twelfth digit)
C Composition resistors	A0 1/10 W	F $\pm 1\%$	A Small type
D Carbon film resistors	18 1/8 W	G $\pm 2\%$	B Small type
F Unflammable resistors	16 1/6 W	J $\pm 5\%$	S Small type
G Oxide metal film resistors	14 1/4 W	K $\pm 10\%$	Y Lead tapping
H Fusible resistors	12 1/2 W	M $\pm 20\%$	Z Lead tapping
M Metal plate resistors	01 1 W		
S Metal glazed resistors	02 2 W		
V Precision metal film resistors	03 3 W		
W Wire wound resistors	04 4 W		
X Metal film resistors	05 5 W		
Z Special resistors	06 6 W		
	07 7 W		
	75 7.5 W		
	08 8 W		
	10 10 W		
	15 15 W		
	A6 16 W		
	20 20 W		
	30 30 W		

#### Values

(eighth — tenth or eleventh digits)

examples:

R47	.....	0.47 $\Omega$
4R7	.....	4.7 $\Omega$
470	.....	$47 \times 10^0$ ..... 47 $\Omega$
471	.....	$47 \times 10^1$ ..... 470 $\Omega$
472	.....	$47 \times 10^2$ ..... 4.7 k $\Omega$
473	.....	$47 \times 10^3$ ..... 47 k $\Omega$
474	.....	$47 \times 10^4$ ..... 470 k $\Omega$
475	.....	$47 \times 10^5$ ..... 4.7 M $\Omega$

QVR resistance shown by four digits:

4640	.....	$464 \times 10^0$ ..... 464 $\Omega$
4641	.....	$464 \times 10^1$ ..... 4.64 k $\Omega$
4642	.....	$464 \times 10^2$ ..... 46.4 k $\Omega$

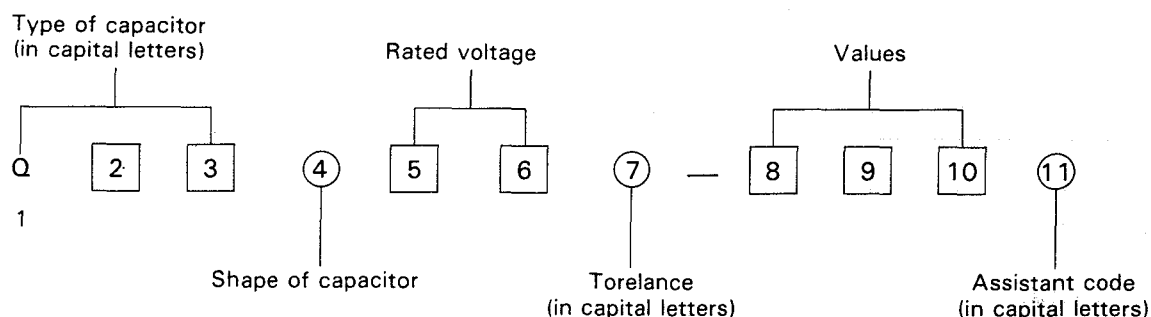
#### Shape of resistor (sixth digit)

Note:  $\blacksquare$  indicates flame retardant resistor.

Type of Shape of resistor	C	D	F	G	H	M	S	V	W	X
1										
2										
3										
4										
5									(L) type	
6										
7			Lug (B) type							
8			Lug (A) type				Chip			
9			Lug (C) type							

### 6.1.2 Fixed capacitor coding

Fixed capacitor part numbers are as follows.



### Ceramic capacitors

Type of capacitor (first – third digits)		Shape of capacitor (fourth digit)				
		Mono-direction	Kink lead	Axial lead	Axial forming lead	Chip
QCC	Ceramic	1		4	5	
QCD	High capacitance					A
QCF	High capacitance	1,4	3			8,A
QCS	Temperature compensation	1	3	4	5	8,A
QCT	Temperature compensation	Special coding				
QCV	Ceramic			1	3	
QCX	Ceramic			1	3	
QCY	High capacitance	1,4	3	6	7	8,A
QCZ	Special type	Special coding				
QCB	Ceramic			B	C	

### Electrolytic capacitors

Type of capacitor (first – third digits)		Shape of capacitor (fourth digit)				
		Tubular	Mono-direction	Anti-stress	Forming	Snap-in
QEB	Low leakage		4	5	6	
QEC	Low leakage		4,8,A	9,B	6,C	
QEE	Tantalum (normal)		4	5	6	
	Tantalum (small)		8			
QEF	Chip tantalum	8 (chip type)				
QEG	Low impedance		4			
QEK	Miniature type		4	5	6	
QEL	Small type		4	5	6	7
QEM	Small type		4,A	5	6	
QEN	Non-polar	2	4	5	6	
QEP	Non-polar (small)		4,A	5,B	6,C	
QER	Miniature type		4	5	6	
QET	Small type	2	4,A	5,B	6,C	7
QEU	Small type		4	5	6	
QEV	Small type		4		6	7
QEW	Normal	2	4	5	6	7

## Paper film capacitors

Type of capacitor (first — third digits)		Shape of capacitor (fourth digit)				
		Tubular	Normal		Flame retardant	
Symbol	Characteristics		Mono-direction	Kink lead	Mono-direction	Kink lead
QFA	Metalized polypropylene				7	
QFE	Metalized mylar				5	
QFF	Film mica		4			
QFG	Polypropylene film		4	8		
QFH	Metalized mylar	2	4	3	5,7	6
QFJ	Mylar (special)		4			
QFK	Metalized mylar (small)				5	
QFM	Mylar	2	4	3,7	5	6
QFN	Mylar (small)		4	3		
QFP	Polypropylene		4	3,8		
QFS	Polystyrole	2	4	3		
QFV	Thin film		4	8		
QFZ	Special type	Special coding				

## Rated voltage (fifth and sixth digits)

Sixth digit \ Fifth digit	A	B	C	D	E	F	G	H	J	K	V	W	X
0						3.15	4.0		6.3				
1	10		16	20	25		40	50	63	80	35		
2	100	125	160	200	250	315	400	500	630		350	450	600
3	1000	1250		2000				5000					

## Tolerance (seventh digit)

A	+100 % -10 %	M	± 20 %
F	± 1 %	N	± 30 %
G	± 2 %	P	+100 % -0 %
H	+50 % -10 %	R	+30 % -10 %
J	± 5 %	X	+40 % -20 %
K	± 10 %	Z	+80 % -20 %

## Values (eighth — tenth digits)

Example : Values are in picofarads

101	.....	$10 \times 10^1$ pF	.....	100 pF
102	.....	$10 \times 10^2$ pF	.....	1,000 pF (0.001 $\mu$ F)
103	.....	$10 \times 10^3$ pF	.....	10,000 pF (0.01 $\mu$ F)
104	.....	$10 \times 10^4$ pF	.....	100,000 pF (0.1 $\mu$ F)
105	.....	$10 \times 10^5$ pF	.....	1 $\mu$ F
5R0	.....		.....	5.0 pF

## Assistant code (eleventh digit)

G	Small size
Z	Lead tapping
Y	Lead tapping

<01><02>

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
*****			
*****			
* 5. SW.REG BOARD ASSY<01><02> *			
*****			
	PWBA	PGE10151C-01	SWITCHING REGULATOR BOARD ASSY
△	STK2	PU44457	STICKER
△	A01	PGZ00760	AC INLET
△	A02	PU52931	CONNECTOR COVER
△	BKT1	PRD20225	TRANS BRACKET
△	ETH1	PRD42862-01-02	EARTH BKT
△	HS1	PQ43230	HEAT SINK(2)
	SCW1	DPSP4008Z	ASSY SCREW
	SCW2	DPSP3008Z	ASSY SCREW, X2
	SCW3	DPSP3012Z	SCREW, X2
	SCW4	SDST3006Z	SCREW, X3
	SCW5	SBSB3008Z	SCREW, X4
	SCW6	SBSB3006Z	SCREW
	SCW7	LPSP4008Z	SCREW
	SKT1	PU45972-16	STICKER
	SLD1	PQ32071	SHILD CASE(2)
△	SPC1	PQ43773	SHEET(AC)
△	F1	QMF51E2-1R25	FUSE
--SW.POWER SUPPLY BOARD ASSY<01>--			
	STK1	PRD42564-22	LABEL
	PWBA1	PGE10151C1 PGE10151D1	SWITCHING BOARD ASSY SW.PWB ASS'Y
	IC1	STR-D1706	IC
	D1	10E6-F2	DIODE
	D2	10E6-F2	DIODE
	D3	10E6-F2	DIODE
	D4	10E6-F2	DIODE
	D5	RU1A	FR DIODE
	D6	RU1A	FR DIODE
	D7	AU01Z	FR DIODE
	OR	ERA48-02	FR DIODE
	D8	AU01Z	FR DIODE
	OR	ERA48-02	FR DIODE
△	D9	AU01Z	FR DIODE
△	D10	AU01Z	FR DIODE
	D11	FML-12S	FR DIODE
	D12	FSKQ40B	BARRIER DIODE
	OR	FMB-24	BARRIER DIODE
	D13	AU01Z	FR DIODE
	OR	ERA48-02	FR DIODE
	D14	AU01Z	FR DIODE
	OR	ERA48-02	FR DIODE
	D28	AU01Z	FR DIODE
	D29	AU01Z	FR DIODE
△	R1	QRZ0078-2R2	WW RESISTOR
	R2	QRD181J-334	RESISTOR
	R3	QRD181J-334	RESISTOR
△	R4	QRG029J-104	OMF RESISTOR

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R5	QRD161J-104	RESISTOR
△	R6	QRG029J-201	OMF RESISTOR
△	R7	QRZ0078-R39	WW RESISTOR
	R9	QVZ3507-101	V RESISTOR
△	C1	QFZ9022-683	MM CAPACITOR
△	C7	QCZ9016-222M	CAPACITOR
△	OR	QCZ9048-222	CAPACITOR
△	C8	QCZ9016-222M	CAPACITOR
△	OR	QCZ9048-222	CAPACITOR
	C9	QED61HM-226	E CAPACITOR
	C10	QEZO111-107	E CAPACITOR
	C11	QCY53AK-472	CAPACITOR
	C12	QCY43AK-121	CAPACITOR
	C13	QFLA1HJ-222Z	M CAPACITOR
	C14	QFV41HJ-474	TF CAPACITOR
	C15	QEZO108-187Z	E CAPACITOR
△	C17	QCZ9016-102K	CAPACITOR
△	OR	QCZ9047-102	CAPACITOR
△	C18	QCZ9016-102K	CAPACITOR
△	OR	QCZ9047-102	CAPACITOR
	C31	QEZO125-228	E CAPACITOR
	C32	QEZO106-338	E CAPACITOR
	C33	QEZO104-476Z	E CAPACITOR
	C34	QEZO107-476Z	E CAPACITOR
	C35	QETB1EM-108	E CAPACITOR
	C36	QETB1EM-108	E CAPACITOR
	C37	QETB1AM-108	E CAPACITOR
	C38	QETC1JM-226	E CAPACITOR
	C39	QETC1HM-226	E CAPACITOR
	C40	QFLA1HJ-102Z	M CAPACITOR
	C41	QFLA1HJ-102Z	M CAPACITOR
	L11	PU56183-330	COIL
	L12	PU56183-330	COIL
	L13	PU56183-330	COIL
	L14	PU48530-101K	COIL
	L15	PU48530-101K	COIL
	L16	PU48530-8R2K	COIL
	L17	PU48530-8R2K	COIL
△	T1	PU60683-2	SWITCHING TRANSFORMER
△	HS1	PQ43231-1-1	HEAT SINK(3)
△	HS2	PU60798	HEAT SINK
△	LF2	PU60347	LINE FILTER
	SLD1	PQ32558-1-1	SHIELD CASE(1)
	CN1	PU58844-9	CONNECTOR
	CN2	PU58844-3	CONNECTOR
--REGULATOR BOARD ASSY<02>--			
	PWBA2	PGE10151D2-01	REG PWB ASS'Y
		PGE10151C2-01	REGULATOR BOARD ASSY
	IC2	BA10324	IC
	IC3	MC7805ACT	IC
	OR	UPC2405HF	IC
	IC101	M54647L	IC
	Q11	2SD1764	TRANSISTOR
	OR	2SD1796	TRANSISTOR
	Q12	2SC1740S(QRS)	TRANSISTOR
	Q13	2SD1764	TRANSISTOR
	OR	2SD1796	TRANSISTOR
	Q14	2SD1764	TRANSISTOR
	OR	2SD1796	TRANSISTOR

#△ REF NO. PART NO. PART NAME, DESCRIPTION

Q15	2SD1764	TRANSISTOR
	OR 2SD1796	TRANSISTOR
Q16	2SB1186(DE)	TRANSISTOR
△ Q17	2SA720	TRANSISTOR
Q18	DTA114ES	TRANSISTOR
D16	RD6.2ES-T1B3	ZENER DIODE
D17	RD5.1ES-T1B2	ZENER DIODE
D19	HZ6B1TE	DIODE
	OR HZ6B1TJ	DIODE
D20	RD13ES-T1B3	DIODE
D21	HZS33EB1	ZENER DIODE
D23	1SS133	DIODE
	OR MA165	DIODE
D24	1SS133	DIODE
	OR MA165	DIODE
D25	1SS133	DIODE
	OR MA165	DIODE
D26	1SS133	DIODE
	OR MA165	DIODE
D27	RD20ES-T1B2	ZENER DIODE
	OR MTZ20BT-77	ZENER DIODE
R14	QRD161J-222	RESISTOR
R15	QRD161J-362	RESISTOR
R16	QRD161J-472	RESISTOR
R17	QRD161J-102	RESISTOR
R18	QRD161J-622	RESISTOR
R19	QRD161J-472	RESISTOR
R20	QRD161J-102	RESISTOR
R21	QRD161J-153	RESISTOR
R22	QRD161J-472	RESISTOR
R23	QRD161J-102	RESISTOR
R24	QRD161J-102	RESISTOR
R25	QRD161J-153	RESISTOR
R26	QVZ3521-222	V RESISTOR,
R27	QRD161J-223	RESISTOR
R28	QRD161J-222	RESISTOR
R29	QRD161J-103	RESISTOR
R30	QRD161J-392	RESISTOR
R31	QRD161J-102	RESISTOR
R32	QRD161J-472	RESISTOR
R33	QRD161J-331	RESISTOR
R34	QRD161J-272	RESISTOR
△ R35	QRZ0077-220X	FUSIBLE RESISTOR
△ R36	QRZ0077-220X	FUSIBLE RESISTOR
R43	QRD161J-392	RESISTOR
R44	QRD181J-1R0	RESISTOR
R45	QRD181J-1R0	RESISTOR
R46	QRD181J-1R0	RESISTOR
R47	QRD181J-1R0	RESISTOR
R48	QRD181J-1R0	RESISTOR
R49	QRD181J-1R0	RESISTOR
R50	QRD181J-1R0	RESISTOR
R51	QRD181J-1R0	RESISTOR
R52	QRD181J-562	RESISTOR
R53	QRD181J-562	RESISTOR
C43	QFN31HJ-103	M CAPACITOR
C44	QETC1CM-107	E CAPACITOR
C45	QETC1HM-106	E CAPACITOR
C46	QFN31HJ-103	M CAPACITOR
C47	QFN31HJ-103	M CAPACITOR
C48	QETC1CM-107	E CAPACITOR
C49	QFN31HJ-103	M CAPACITOR
C50	QFN31HJ-103	M CAPACITOR
C51	QETC1AM-107	E CAPACITOR
C52	QEZO107-476Z	E CAPACITOR

#△ REF NO. PART NO. PART NAME, DESCRIPTION

C53	QETC1CM-107	E CAPACITOR
C54	QETC1HM-106	E CAPACITOR
C55	QFN31HJ-103	M CAPACITOR
C56	QFN31HJ-103	M CAPACITOR
C57	QETC1AM-107	E CAPACITOR
C58	QETC1HM-226	E CAPACITOR
C59	QETC1HM-226	E CAPACITOR
C60	QETC1HM-226	E CAPACITOR
C101	QETC1EM-476	E CAPACITOR
C102	QETC1HM-105	E CAPACITOR
L18	PU53618-101J	COIL
△ HD1	PU57505	FUSE CLIP, X2
△ HS1	PQ43701-1-1	HEAT SINK
△ LF1	PU60020	LINE FILTER
△ TAB1	A74316	TAB, X2
TP1	PU55774	TEST PIN, X4(TP1-3,GND)
CN4	PU58844-102	CONNECTOR
CN5	PU58844-102R	CONNECTOR
CN6	PU58844-107	CONNECTOR
CN7	PU58844-105	CONNECTOR
CN8	PU58844-108	CONNECTOR
CN9	PU58844-103R	CONNECTOR
CN10	PU58844-103R	CONNECTOR
CN11	PU58844-103	CONNECTOR
CN12	PU58844-108	CONNECTOR
CN13	PU58844-103Y	CONNECTOR
△ CP1	ICP-F15	CIRCUIT PROTECTOR
△ CP2	ICP-F25	CIRCUIT PROTECTOR
△ CP3	ICP-F10	CIRCUIT PROTECTOR
△ CP4	ICP-F20	CIRCUIT PROTECTOR
△ CP101	ICP-F25	CIRCUIT PROTECTOR
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* 6. VIDEO BOARD ASSY<03> *		
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PWBA	PRK10098A-01	VIDEO BOARD ASSY
	PRK10098B-01	VIDEO BOARD ASSY
HN1	PU58018-1-2	PWB HINGE, X2
SPC1	PU60010	SPACER, X4
TP6	PU56008	TEST-PIN
TP10	PU57545	TEST PIN, X34
CN1	PU58844-3R	CONNECTOR
CN3	PU58844-5	CONNECTOR
CN4	PU58844-5	CONNECTOR
CN5	PU58844-5Y	CONNECTOR
CN6	PU58844-4R	CONNECTOR
CN7	PU58844-5R	CONNECTOR
CN8	PU58844-2R	CONNECTOR
CN9	PU58844-3Y	CONNECTOR
CN10	PU58844-3R	CONNECTOR
CN11	PU58844-5	CONNECTOR
CN12	PU58844-8Y	CONNECTOR
CN18	PU58844-4	CONNECTOR

<03>

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	CN19	PU58844-4	CONNECTOR
	CN20	PU58844-8	CONNECTOR
	CN21	PU58844-6R	CONNECTOR
	CN22	PU58844-3	CONNECTOR
	CN23	PU58844-3Y	CONNECTOR
	CN25	PU58844-3	CONNECTOR
	CN26	PU58844-2Y	CONNECTOR
	CN27	PU58844-4	CONNECTOR
--VIDEO Y SECTION--			
	LCF1	PU60813	LCF
	IC1	PB20291A	Y MODULE
	IC2	NJM2234D	IC
	IC3	M51288SP	IC
	IC5	HA118070	IC
	IC6	PB20290A-02	JOG MODULE
	IC7	M52055P	IC
	IC8	NJM2233BD	IC
	IC9	PB20285A	Y MODULE
	IC10	PB20298A	Y MODULE BOARD ASSY
	IC11	PB20286A-02	YNR MODULE BOARD ASSY
	IC12	VC2063S	IC
	IC13	TC74HC04AP	IC
	OR MC74HC04AN	IC	
	IC16	BU4066B	IC
	IC19	NJM2233BD	IC
	IC25	M5278L09	IC
	IC27	NJM2233BD	IC
	IC29	NJM2233BD	IC
	IC30	AN608P	IC
	Q1	2SC1740S(QRS)	TRANSISTOR
	Q2	DTC124ES	TRANSISTOR
	Q3	DTC124ES	TRANSISTOR
	Q4	2SC1740S(QRS)	TRANSISTOR
	Q5	2SC1740S(QRS)	TRANSISTOR
	Q7	DTC124ES	TRANSISTOR
	Q8	2SA933S	TRANSISTOR
	Q9	2SA933S	TRANSISTOR
	Q10	2SC1740S(QRS)	TRANSISTOR
	Q12	2SC1740S(QRS)	TRANSISTOR
	Q13	2SC1740S(QRS)	TRANSISTOR
	Q14	2SA933S	TRANSISTOR
	Q15	2SA933S	TRANSISTOR
	Q16	2SA933S	TRANSISTOR
	Q17	DTC124ES	TRANSISTOR
	Q18	2SK381(C)	FE TRANSISTOR
	Q19	2SA933S	TRANSISTOR
	Q20	2SC1740S(QRS)	TRANSISTOR
	Q21	2SC1740S(QRS)	TRANSISTOR
	Q22	DTC144ES	TRANSISTOR
	Q23	2SA933S	TRANSISTOR
	Q24	2SA933S	TRANSISTOR
	Q25	2SA933S	TRANSISTOR
	Q26	2SC1740S(QRS)	TRANSISTOR
	Q27	DTC124ES	TRANSISTOR
	Q28	DTC124ES	TRANSISTOR
	Q29	DTA124ES	TRANSISTOR
	Q30	2SC1740S(QRS)	TRANSISTOR
	Q31	2SC1740S(QRS)	TRANSISTOR
	Q32	DTA124ES	TRANSISTOR
	Q33	2SA933S	TRANSISTOR
	Q34	2SC1740S(RS)	TRANSISTOR
	Q35	2SB851Q,R	TRANSISTOR
	Q36	DTA124ES	TRANSISTOR
	Q37	DTA124ES	TRANSISTOR

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	Q38	DTC124ES	TRANSISTOR
	Q39	2SC3313CTA	TRANSISTOR
	Q40	2SC3313CTA	TRANSISTOR
	Q42	2SC2647C	TRANSISTOR
	Q43	2SC2647C	TRANSISTOR
	Q45	2SC1740S(QRS)	TRANSISTOR
	Q46	2SA933S	TRANSISTOR
	Q47	2SC1740S(QRS)	TRANSISTOR
	Q48	2SC1740S(QRS)	TRANSISTOR
	Q49	2SA933S	TRANSISTOR
	Q50	2SA933S	TRANSISTOR
	Q51	2SA933S	TRANSISTOR
	Q52	2SC1740S(QRS)	TRANSISTOR
	Q53	DTC124ES	TRANSISTOR
	Q54	DTC144ES	TRANSISTOR
	Q56	DTA124ES	TRANSISTOR
	Q101	2SC1740S(QRS)	TRANSISTOR
	Q102	2SA933S	TRANSISTOR
	Q103	2SC1740S(QRS)	TRANSISTOR
	Q104	2SC1740S(QRS)	TRANSISTOR
	Q105	2SC1740S(QRS)	TRANSISTOR
	Q107	2SC1740S(QRS)	TRANSISTOR
	Q109	2SC1740S(QRS)	TRANSISTOR
	Q111	2SC1740S(QRS)	TRANSISTOR
	Q112	2SC1740S(QRS)	TRANSISTOR
	Q114	2SC1740S(QRS)	TRANSISTOR
	Q117	DTC124ES	TRANSISTOR
	Q121	2SC1740S(QRS)	TRANSISTOR
	Q130	2SA933S(QRS)	TRANSISTOR
	Q150	2SB641Q	TRANSISTOR
	Q151	2SB641Q	TRANSISTOR
	Q152	2SB641Q	TRANSISTOR
	D1	1SS133	DIODE
	OR MA165	DIODE	
	D2	1SS133	DIODE
	OR MA165	DIODE	
	D3	1SS133	DIODE
	OR MA165	DIODE	
	D4	1SS133	DIODE
	OR MA165	DIODE	
	D5	1SS133	DIODE
	OR MA165	DIODE	
	D6	1SS133	DIODE
	OR MA165	DIODE	
	D7	1SS133	DIODE
	OR MA165	DIODE	
	D8	1SS133	DIODE
	OR MA165	DIODE	
	D10	1SS133	DIODE
	OR MA165	DIODE	
	D11	1SS133	DIODE
	OR MA165	DIODE	
	D12	1SS133	DIODE
	OR MA165	DIODE	
	D13	1SS133	DIODE
	OR MA165	DIODE	
	D20	0A90UF	DIODE
	D21	0A90UF	DIODE
	D22	1SS133	DIODE
	OR MA165	DIODE	
	D23	1SS133	DIODE
	OR MA165	DIODE	
	D24	1SS133	DIODE
	OR MA165	DIODE	

#△ REF NO. PART NO. PART NAME, DESCRIPTION

D25	1SS133	DIODE
	OR MA165	DIODE
D26	1SS133	DIODE
	OR MA165	DIODE
D27	1SS133	DIODE
	OR MA165	DIODE
D28	1SS133	DIODE
	OR MA165	DIODE
D29	1SS133	DIODE
	OR MA165	DIODE
D31	1SS133	DIODE
	OR MA165	DIODE
D32	1SS133	DIODE
	OR MA165	DIODE
D50	1SS133	DIODE
	OR MA165	DIODE
D51	1SS133	DIODE
	OR MA165	DIODE
D52	1SS133	DIODE
	OR MA165	DIODE
D53	1SS133	DIODE
	OR MA165	DIODE
R1	QRD161J-562	RESISTOR
R2	QRD161J-822	RESISTOR
R3	QRD161J-223	RESISTOR
R4	QRD161J-182	RESISTOR
R5	QRD161J-821	RESISTOR
R6	QRD161J-681	RESISTOR
R7	QRD161J-223	RESISTOR
R8	QRD161J-273	RESISTOR
R9	QRD161J-223	RESISTOR
R10	QRD161J-681	RESISTOR
R11	QRD161J-331	RESISTOR
R12	QRD161J-331	RESISTOR
R13	QRD161J-475	RESISTOR
R14	QRD161J-102	RESISTOR
R16	QRD161J-222	RESISTOR
R17	QRD161J-821	RESISTOR
R18	QRD161J-102	RESISTOR
R19	QRD161J-222	RESISTOR
R20	QRD161J-122	RESISTOR
R21	QRD161J-102	RESISTOR
R23	QRD161J-102	RESISTOR
R25	QRD161J-272	RESISTOR
R26	QRD121J-181S	RESISTOR
R27	QVZ3518-102	V RESISTOR,
R28	QRD161J-471	RESISTOR
R29	QRD161J-821	RESISTOR
R30	QRD161J-561	RESISTOR
R31	QRD161J-471	RESISTOR
R32	QRD161J-153	RESISTOR
R33	QRD161J-561	RESISTOR
R34	QRD161J-182	RESISTOR
R35	QRD161J-102	RESISTOR
R36	QRD161J-221	RESISTOR
R37	QRD161J-271	RESISTOR
R38	QRD161J-471	RESISTOR
R39	QRD161J-152	RESISTOR
R40	QRD161J-152	RESISTOR
R41	QRD161J-562	RESISTOR
R42	QVZ3518-103	V RESISTOR,
R43	QRD161J-103	RESISTOR
R44	QRD161J-331	RESISTOR
R45	QRD161J-0R0	RESISTOR
R46	QRD161J-331	RESISTOR
R47	QRD161J-122	RESISTOR

#△ REF NO. PART NO. PART NAME, DESCRIPTION

R48	QRD161J-391	RESISTOR
R49	QRD161J-152	RESISTOR
R50	QRD161J-102	RESISTOR
R51	QRD161J-153	RESISTOR
R52	QRD161J-683	RESISTOR
R53	QRD161J-122	RESISTOR
R54	QRD161J-152	RESISTOR
R55	QRD161J-331	RESISTOR
R57	QVZ3518-151	V RESISTOR,
R58	QRD161J-241	RESISTOR
R60	QRD161J-273	RESISTOR
R61	QRD161J-223	RESISTOR
R62	QRD161J-152	RESISTOR
R63	QRD161J-102	RESISTOR
R64	QRD161J-102	RESISTOR
R65	QRD161J-152	RESISTOR
R66	QRD161J-561	RESISTOR
R67	QRD161J-821	RESISTOR
R68	QRD161J-471	RESISTOR
R69	QRD161J-123	RESISTOR
R70	QRD161J-473	RESISTOR
R71	QRD161J-122	RESISTOR
R72	QRD161J-102	RESISTOR
R73	QRD161J-822	RESISTOR
R74	QRD161J-182	RESISTOR
R75	QVZ3518-102	V RESISTOR,
R76	QRD161J-272	RESISTOR
R77	QRD161J-332	RESISTOR
R78	QRD161J-183	RESISTOR
R79	QRD161J-222	RESISTOR
R80	QRD161J-681	RESISTOR
R81	QRD161J-223	RESISTOR
R82	QRD161J-393	RESISTOR
R83	QRD161J-153	RESISTOR
R84	QRD161J-154	RESISTOR
R85	QRD161J-124	RESISTOR
R87	QRD161J-394	RESISTOR
R88	QRD161J-475	RESISTOR
R89	QRD161J-562	RESISTOR
R91	QVZ3518-473	V RESISTOR,
R92	QVZ3518-473	V RESISTOR,
R93	QRD161J-223	RESISTOR
R94	QRD161J-821	RESISTOR
R95	QVZ3518-102	V RESISTOR,
R96	QRD161J-102	RESISTOR
R97	QRD161J-103	RESISTOR
R98	QRD161J-223	RESISTOR
R99	QRD161J-681	RESISTOR
R100	QRD161J-223	RESISTOR
R101	QRD161J-153	RESISTOR
R102	QRD161J-391	RESISTOR
R103	QVZ3518-102	V RESISTOR,
R104	QRD161J-102	RESISTOR
R105	QRD161J-331	RESISTOR
R106	QRD161J-102	RESISTOR
R107	QVZ3518-151	V RESISTOR,
R108	QVZ3518-473	V RESISTOR,
R109	QRD161J-223	RESISTOR
R110	QVZ3518-473	V RESISTOR,
R111	QRD161J-223	RESISTOR
R112	QRD161J-391	RESISTOR
R113	QRD161J-391	RESISTOR
R114	QRD161J-391	RESISTOR
R115	QRD161J-391	RESISTOR
R116	QRD161J-391	RESISTOR
R117	QRD161J-223	RESISTOR
R118	QVZ3518-223	V RESISTOR,



#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R119	QVZ3518-472	V RESISTOR,
	R120	QRD161J-102	RESISTOR
	R122	QRD161J-102	RESISTOR
	R123	QRD161J-102	RESISTOR
	R124	QRD161J-102	RESISTOR
	R125	QRD161J-102	RESISTOR
	R126	QRD161J-102	RESISTOR
	R127	QRD161J-473	RESISTOR
	R128	QRD161J-562	RESISTOR
	R129	QRD161J-103	RESISTOR
	R130	QRD161J-393	RESISTOR
	R131	QRD161J-272	RESISTOR
	R133	QRD161J-224	RESISTOR
	R135	QRD161J-473	RESISTOR
	R136	QRD161J-393	RESISTOR
	R137	QRD161J-153	RESISTOR
	R138	QRD161J-561	RESISTOR
	R139	QRD161J-182	RESISTOR
	R140	QRD161J-271	RESISTOR
	R141	QRD161J-223	RESISTOR
	R142	QRD161J-392	RESISTOR
△	R147	QRD121J-680S	RESISTOR
	R149	QRD161J-101	RESISTOR
	R150	QRD161J-101	RESISTOR
	R151	QRD161J-393	RESISTOR
	R152	QRD161J-822	RESISTOR
	R153	QRD161J-122	RESISTOR
	R154	QRD161J-271	RESISTOR
	R155	QRD161J-222	RESISTOR
	R157	QRD161J-221	RESISTOR
	R161	QRD161J-222	RESISTOR
	R163	QVZ3518-681	V RESISTOR,
	R164	QRD161J-102	RESISTOR
	R165	QRD161J-102	RESISTOR
	R166	QRD161J-151	RESISTOR
	R167	QRD161J-102	RESISTOR
	R168	QRD161J-102	RESISTOR
	R169	QRD161J-223	RESISTOR
	R170	QRD161J-153	RESISTOR
	R171	QRD161J-121	RESISTOR
	R172	QRD161J-101	RESISTOR
	R173	QRD161J-472	RESISTOR
	R174	QRD161J-102	RESISTOR
	R175	QRD161J-331	RESISTOR
	R176	QRD161J-392	RESISTOR
	R177	ERT-D2FHL332S	THERMISTOR
	R178	QRD161J-272	RESISTOR
	R179	QRD161J-223	RESISTOR
	R180	QRD161J-122	RESISTOR
	R184	QRD161J-272	RESISTOR
	R185	QRD161J-471	RESISTOR
	R186	QRD161J-391	RESISTOR
	R187	QRD161J-621	RESISTOR
	R188	QRD161J-392	RESISTOR
	R189	QRD161J-181	RESISTOR
	R190	QRD161J-821	RESISTOR
	R191	QRD161J-222	RESISTOR
	R192	ERT-D2FGL102S	THERMISTOR
	R193	QRD161J-473	RESISTOR
	R194	QRD161J-473	RESISTOR
	R195	QRD161J-561	RESISTOR
	R196	QRD161J-561	RESISTOR
	R197	QVZ3518-471	V RESISTOR,
	R198	QRD161J-103	RESISTOR
	R201	QRD161J-332	RESISTOR

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R204	QRD161J-102	RESISTOR
	R205	QRD161J-102	RESISTOR
△	R206	QRD121J-680S	RESISTOR
	R209	QRD161J-474	RESISTOR
	R210	QRD161J-101	RESISTOR
	R211	QRD161J-101	RESISTOR
	R212	QRD161J-122	RESISTOR
	R213	QRD161J-182	RESISTOR
	R214	QVZ3518-222	V RESISTOR,
	R216	QRD161J-242	RESISTOR
	R219	QRD161J-122	RESISTOR
	R450	QRD161J-333	RESISTOR
	R451	QRD161J-123	RESISTOR
	R452	QRD161J-680	RESISTOR
	R453	QRD161J-333	RESISTOR
	R454	QRD161J-123	RESISTOR
	R455	QRD161J-333	RESISTOR
	R456	QRD161J-123	RESISTOR
	R457	QRD161J-680	RESISTOR
	R458	QVZ3518-473	V RESISTOR,
	R459	QRD161J-393	RESISTOR
	R460	QRD161J-223	RESISTOR
	R461	QRD161J-222	RESISTOR
	R462	QRD161J-152	RESISTOR
	R463	QVZ3518-222	V RESISTOR,
	R464	QRD161J-101	RESISTOR
	R465	QRD161J-222	RESISTOR
	R466	QRD161J-101	RESISTOR
	R469	QRD161J-472	RESISTOR
	R481	QRD161J-102	RESISTOR
	R482	QRD161J-222	RESISTOR
	R483	QRD161J-222	RESISTOR
	R484	QRD161J-152	RESISTOR
	R486	QRD161J-102	RESISTOR
	R487	QRD161J-222	RESISTOR
	R488	QRD161J-222	RESISTOR
	R489	QVZ3518-152	V RESISTOR,
	R491	QRD161J-332	RESISTOR
	R492	QRD161J-103	RESISTOR
	R493	QRD161J-103	RESISTOR
	R494	QRD161J-223	RESISTOR
	R495	QRD161J-223	RESISTOR
	R496	QRD161J-272	RESISTOR
	R497	QRD161J-102	RESISTOR
	R498	QRD161J-102	RESISTOR
	R501	QRD161J-333	RESISTOR
	R502	QRD161J-123	RESISTOR
	R504	QRD161J-562	RESISTOR
	R510	QRD161J-103	RESISTOR
	R512	QRD161J-272	RESISTOR
	R513	QRD161J-103	RESISTOR
	R514	QRD161J-680	RESISTOR
	R515	QRD161J-102	RESISTOR
	R526	QRD161J-392	RESISTOR
	R527	QRD161J-222	RESISTOR
	R528	QRD161J-331	RESISTOR
	R529	QRD161J-272	RESISTOR
	R530	QRD161J-223	RESISTOR
	R550	QRD161J-152	RESISTOR
	R551	QRD161J-332	RESISTOR
	R552	QRD161J-562	RESISTOR
	R555	QRD161J-821	RESISTOR
	R556	QRD121J-391S	RESISTOR

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION	#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
R557	QRD121J-391S	RESISTOR		C68	QEK61CM-106	E CAPACITOR	
R558	QRD121J-391S	RESISTOR		C69	QCVB1CN-103	CAPACITOR	
R559	QRD161J-101	RESISTOR		C70	QEK61CM-476	E CAPACITOR	
R560	QRD161J-103	RESISTOR					
R561	QRD161J-101	RESISTOR		C74	QCSB1HJ-560	CAPACITOR	
R562	QRD161J-101	RESISTOR		C76	QETC0JM-476	E CAPACITOR	
R563	QRD161J-182	RESISTOR		C77	QETC1EM-335	E CAPACITOR	
R564	QRD161J-0R0	RESISTOR		C78	QETC0JM-476	E CAPACITOR	
				C79	QETC1CM-106	E CAPACITOR	
				C80	QETC1CM-106	E CAPACITOR	
C1	QCSB1HJ-560	CAPACITOR					
C2	QCB1HJ-101	CAPACITOR		C81	QETC0JM-476	E CAPACITOR	
C3	QCB1HJ-181	CAPACITOR		C82	QETC1EM-475	E CAPACITOR	
C4	QETC1EM-475	E CAPACITOR		C83	QETC1EM-475	E CAPACITOR	
C5	QETC1HM-224	E CAPACITOR		C84	QCB1HJ-121	CAPACITOR	
C6	QETC0JM-337	E CAPACITOR		C85	QCSB1HJ-560	CAPACITOR	
C7	QCVB1CN-103	CAPACITOR		C86	QEK61CM-106	E CAPACITOR	
C8	QCSB1HJ-560	CAPACITOR		C87	QCSB1HJ-150	CAPACITOR	
C9	QENC1HM-105	NP E CAPACITOR		C88	QEK61HM-225	E CAPACITOR	
C10	QCVB1CN-103	CAPACITOR		C89	QEK61CM-106	E CAPACITOR	
				C90	QEK51CM-476	E CAPACITOR	
C11	QCSB1HJ-680	CAPACITOR					
C13	QCVB1CN-103	CAPACITOR		C91	QCVB1CN-103	CAPACITOR	
C14	QETC1HM-225	E CAPACITOR		C92	QETC1CM-106	E CAPACITOR	
C15	QFN41HK-563	M CAPACITOR		C93	QCB1HJ-101	CAPACITOR	
C16	QCB1HJ-181	CAPACITOR		C94	QCSB1HJ-270	CAPACITOR	
C17	QCB1HJ-391	CAPACITOR		C95	QCSB1HJ-180	CAPACITOR	
C18	QETC1HM-225	E CAPACITOR		C96	QEK61EM-335	E CAPACITOR	
C19	QETC1CM-106	E CAPACITOR		C97	QCB1HJ-151	CAPACITOR	
C20	QEK61CM-336	E CAPACITOR		C98	QETC1HM-105	E CAPACITOR	
				C99	QED60JM-127	E CAPACITOR	
C21	QCVB1CN-103	CAPACITOR		C100	QCVB1CN-103	CAPACITOR	
C22	QCVB1CN-103	CAPACITOR					
C23	QETC1CM-106	E CAPACITOR		C101	QEK40JM-337	E CAPACITOR	
C24	QCVB1CN-103	CAPACITOR		C102	QCSB1HJ-120	CAPACITOR	
C25	QCVB1CN-103	CAPACITOR		C103	QCB1HJ-121	CAPACITOR	
C26	QCVB1CN-103	CAPACITOR		C104	QCB1HJ-121	CAPACITOR	
C27	QCVB1CN-103	CAPACITOR		C105	QCVB1CN-103	CAPACITOR	
C28	QEK61EM-475	E CAPACITOR		C106	QCVB1CN-103	CAPACITOR	
C30	QCVB1CN-103	CAPACITOR		C107	QCVB1CN-103	CAPACITOR	
				C108	QCVB1CN-103	CAPACITOR	
C31	QEK61EM-475	E CAPACITOR		C109	QCB1HJ-101	CAPACITOR	
C32	QEK61EM-475	E CAPACITOR		C110	QCVB1CN-103	CAPACITOR	
C33	QER61AM-226	E CAPACITOR					
C34	QETC0JM-337	E CAPACITOR		C111	QETC0JM-476	E CAPACITOR	
C35	QCVB1CN-103	CAPACITOR		C112	QCVB1CN-103	CAPACITOR	
C36	QEP61EM-475	NP E CAPACITOR		C113	QCB1HJ-101	CAPACITOR	
C37	QER61EM-475	E CAPACITOR		C114	QCVB1CN-103	CAPACITOR	
C38	QCVB1CN-103	CAPACITOR		C115	QCVB1CN-103	CAPACITOR	
C40	QEK60JM-476	E CAPACITOR		C116	QCB1HJ-101	CAPACITOR	
				C117	QCVB1CN-103	CAPACITOR	
C43	QEK61CM-106	E CAPACITOR		C118	QCVB1CN-103	CAPACITOR	
C44	QCVB1CN-103	CAPACITOR		C119	QCVB1CN-103	CAPACITOR	
C47	QEK61CM-106	E CAPACITOR		C120	QCVB1CN-103	CAPACITOR	
C48	QETC1CM-476	E CAPACITOR					
C49	QETC1CM-106	E CAPACITOR		C121	QEK61CM-106	E CAPACITOR	
C50	QCVB1CN-103	CAPACITOR		C122	QCVB1CN-103	CAPACITOR	
				C123	QETC1HM-105	E CAPACITOR	
C51	QCSB1HJ-390	CAPACITOR		C124	QCVB1CN-103	CAPACITOR	
C52	QCVB1CN-103	CAPACITOR		C125	QETC1CM-476	E CAPACITOR	
C53	QETC1CM-476	E CAPACITOR					
C55	QEK61CM-106	E CAPACITOR		C136	QCVB1CN-103	CAPACITOR	
C56	QEK61CM-106	E CAPACITOR		C137	QETC1CM-476	E CAPACITOR	
C57	QEK61CM-106	E CAPACITOR		C138	QCVB1CN-103	CAPACITOR	
C58	QEK61CM-106	E CAPACITOR					
C60	QEK61CM-476	E CAPACITOR		C146	QCSB1HJ-220	CAPACITOR	
				C147	QCB1HJ-101	CAPACITOR	
C61	QCVB1CN-103	CAPACITOR		C148	QCVB1CN-103	CAPACITOR	
C62	QCSB1HJ-470	CAPACITOR		C149	QCSB1HJ-560	CAPACITOR	
C63	QCVB1CN-103	CAPACITOR		C150	QCSB1HJ-390	CAPACITOR	
C64	QCS31HJ-470	CAPACITOR					
C65	QEK60JM-476	E CAPACITOR		C151	QCVB1CN-103	CAPACITOR	
C66	QEK61CM-106	E CAPACITOR		C152	QEK61CM-336	E CAPACITOR	
C67	QCVB1CN-103	CAPACITOR		C153	QCSB1HK-5R6	CAPACITOR	

#△ REF NO. PART NO. PART NAME, DESCRIPTION

C154 QCSB1HJ-390 CAPACITOR  
 C155 QCSB1HJ-120 CAPACITOR  
 C156 QCSB1HJ-100 CAPACITOR  
 C157 QCSB1HJ-181 CAPACITOR  
 C159 QCVB1CN-103 CAPACITOR  
 C160 QCSB1HJ-151 CAPACITOR

C162 QEK61CM-106 E CAPACITOR  
 C163 QEK61CM-106 E CAPACITOR  
 C165 QEK61CM-476 E CAPACITOR  
 C166 QCVB1CN-103 CAPACITOR  
 C167 QETC1CM-107 E CAPACITOR  
 C168 QCVB1CN-103 CAPACITOR  
 C169 QETC1CM-106 E CAPACITOR

C171 QCVB1CN-103 CAPACITOR  
 C172 QCVB1CN-103 CAPACITOR  
 C173 QCT25CH-470 CAPACITOR  
 C174 QCSB1HJ-471 CAPACITOR  
 C175 QCC31CJ-563 CAPACITOR  
 C178 QCVB1CN-103 CAPACITOR  
 C180 QCSB1HJ-220 CAPACITOR

C183 QCSB1HJ-390 CAPACITOR  
 C184 QCVB1CN-103 CAPACITOR  
 C186 QEK61CM-336 E CAPACITOR  
 C190 QCVB1CN-103 CAPACITOR

C191 QEK61CM-476 E CAPACITOR  
 C192 QETC1CM-106 E CAPACITOR  
 C199 QCVB1CN-103 CAPACITOR  
 C200 QCVB1CN-103 CAPACITOR

C201 QCVB1CN-103 CAPACITOR

C212 QEK61CM-106 E CAPACITOR  
 C220 QEK61CM-106 E CAPACITOR

C224 QEK61CM-106 E CAPACITOR

C233 QEK51CM-476 E CAPACITOR  
 C234 QCVB1CN-103 CAPACITOR  
 C235 QCT25CH-100 CAPACITOR  
 C236 QEK61CM-476 E CAPACITOR  
 C237 QCVB1CN-103 CAPACITOR  
 C238 QEK61CM-106 E CAPACITOR

C247 QCT25CH-100 CAPACITOR  
 C248 QEK61CM-476 E CAPACITOR  
 C249 QCVB1CN-103 CAPACITOR  
 C250 QEK51CM-476 E CAPACITOR

C251 QENC1CM-106 E CAPACITOR  
 C252 QER61CM-106 E CAPACITOR  
 C253 QEK51CM-476 E CAPACITOR  
 C254 QCVB1CN-103 CAPACITOR  
 C255 QEK61CM-106 E CAPACITOR  
 C256 QEK61CM-106 E CAPACITOR  
 C257 QEK61CM-106 E CAPACITOR  
 C258 QEK51CM-476 E CAPACITOR  
 C259 QCVB1CN-103 CAPACITOR

C261 QEK51CM-476 E CAPACITOR  
 C262 QCVB1CN-103 CAPACITOR  
 C263 QEK61CM-106 E CAPACITOR  
 C264 QEK61CM-106 E CAPACITOR

C275 QENC1AM-476 E CAPACITOR  
 C276 QETA0JM-477 E CAPACITOR  
 C277 PU54990-3 E CAPACITOR  
 C280 QEK61CM-106 E CAPACITOR

C281 QCSB1HJ-271 CAPACITOR  
 C282 QCSB1HJ-470 CAPACITOR

#△ REF NO. PART NO. PART NAME, DESCRIPTION

C283 QCSB1HJ-391 CAPACITOR  
 C284 QCF11HP-473 CAPACITOR  
 C290 QCSB1HJ-470 CAPACITOR

C291 QENA1AM-226 NP E CAPACITOR  
 C292 QETA1CM-476 E CAPACITOR  
 C295 QENA1AM-226 NP E CAPACITOR  
 C296 QCSB1HJ-181 CAPACITOR  
 C298 QCVB1CN-103 CAPACITOR  
 C299 QCVB1CN-103 CAPACITOR

L1 PU59152-220J COIL  
 L2 PU48530-101K COIL  
 L3 PU48530-101K COIL  
 L4 PU48530-101K COIL  
 L6 PU48530-101K COIL  
 L7 PU48530-101K COIL  
 L8 PU48530-101K COIL  
 L9 PU48530-101K COIL  
 L10 PU48530-101K COIL

L11 PU48530-101K COIL  
 L13 PU59152-220J COIL  
 L14 PU48530-101K COIL  
 L15 PU48530-101K COIL  
 L16 PU59152-820J COIL  
 L17 PU48530-101K COIL  
 L18 PU59152-560J COIL  
 L19 PU48530-101K COIL  
 L20 PU48530-471K COIL

L21 PU59152-150J COIL  
 L22 PU48530-101K COIL  
 L23 PU48530-471K COIL  
 L24 PU48530-560J COIL  
 L25 PU48530-221J COIL  
 L26 PU59152-560J COIL  
 L27 PU48530-101K COIL  
 L28 PU48530-101K COIL  
 L29 PU48530-101K COIL  
 L30 PU60165-8R2G COIL

L31 PU60165-8R2G COIL  
 L32 PU48530-101K COIL  
 L35 PU59152-1R0K COIL  
 L36 PU59152-1R0K COIL  
 L38 PU59152-5R6J COIL  
 L39 PU48530-101K COIL  
 L40 PU59152-820J COIL

L41 PU59152-470J COIL  
 L42 PU59152-221J COIL  
 L43 PU48530-101K COIL  
 L44 PU59152-151J COIL  
 L46 PU48530-101K COIL

L53 PU48530-101K COIL  
 L58 PU59152-121J COIL

L62 PU59152-121J COIL  
 L63 PU48530-101K COIL  
 L64 PU48530-101K COIL  
 L65 PU48530-101K COIL  
 L68 PU48530-101K COIL  
 L69 PU48530-101K COIL  
 L70 PU48530-101K COIL

EQ1 PU60099 EQUALIZER  
 EQ2 PU60809 EQUALIZER  
 EQ3 PU60810 EQUALIZER

LPF2 PGZ00183 LOW PASS FILTER  
 LPF3 PU60806-2 LOW PASS FILTER  
 LPF4 PU60737 LOW PASS FILTER  
 LPF10 PU59395 LOW PASS FILTER

#A REF NO. PART NO. PART NAME, DESCRIPTION

LPF11	PU59395	LOW PASS FILTER
BPF2	PU60921	BAND PASS FILTER
BPF3	PU60808-2	BAND PASS FILTER
DL1	PU60815	2H DELAY LINE
DL3	PU61081	1/4H DELAY LINE
△ X101	PU60438	CRYSTAL RESONATOR
T1	PU60814	COIL,
T2	PU60814	COIL,

## --VIDEO C SECTION--

IC301	PB20287A-03	C MODULE
IC302	PB20289A-02	JOG MODULE
IC303	NJM2234D	IC
IC401	AN608P	IC
IC402	HA118070	IC
IC403	AN6366N	IC
Q301	2SA933S	TRANSISTOR
Q302	DTC144WS	TRANSISTOR
Q303	DTA124ES	TRANSISTOR
Q304	2SC1740S(QRS)	TRANSISTOR
Q305	2SC1740S(QRS)	TRANSISTOR
Q307	2SC2021Q,R,S	TRANSISTOR
Q308	2SA937	TRANSISTOR
Q309	2SC1740S(QRS)	TRANSISTOR
Q310	DTC124ES	TRANSISTOR
Q311	2SC1740S(QRS)	TRANSISTOR
Q312	DTC114ES	TRANSISTOR
Q313	DTC114ES	TRANSISTOR
Q314	DTC144WS	TRANSISTOR
Q315	2SC1740S(QRS)	TRANSISTOR
Q316	2SA933S	TRANSISTOR
Q317	2SC1740S(QRS)	TRANSISTOR
Q318	2SC1740S(QRS)	TRANSISTOR
Q319	2SC1740S(QRS)	TRANSISTOR
Q320	DTC124ES	TRANSISTOR
Q323	DTC124ES	TRANSISTOR
Q324	DTC124ES	TRANSISTOR
Q325	DTC124ES	TRANSISTOR
Q326	2SA933S	TRANSISTOR
Q327	2SA933S(QRS)	TRANSISTOR
Q331	DTC124ES	TRANSISTOR
Q401	2SC1740S(QRS)	TRANSISTOR
Q402	2SC1740S(QRS)	TRANSISTOR
D301	1SS133	DIODE
OR MA165		DIODE
D302	1SS133	DIODE
OR MA165		DIODE
D311	1SS133	DIODE
OR MA165		DIODE
D312	1SS133	DIODE
OR MA165		DIODE
D313	1SS133	DIODE
OR MA165		DIODE
D314	1SS133	DIODE
OR MA165		DIODE
D315	1SS133	DIODE
OR MA165		DIODE
D321	1SS133	DIODE
OR MA165		DIODE

#A REF NO. PART NO. PART NAME, DESCRIPTION

D322	1SS133	DIODE
OR MA165		DIODE
R302	QRD161J-102	RESISTOR
R303	QRD161J-102	RESISTOR
R304	QRD161J-102	RESISTOR
R305	QRD161J-102	RESISTOR
R307	QRD161J-225	RESISTOR
R308	QRD161J-103	RESISTOR
R309	QRD161J-102	RESISTOR
R310	QRD161J-222	RESISTOR
R311	QRD161J-222	RESISTOR
R312	QRD161J-561	RESISTOR
R313	QRD161J-561	RESISTOR
R314	QRD161J-103	RESISTOR
R315	QRD161J-471	RESISTOR
R316	QRD161J-223	RESISTOR
R319	QRD161J-102	RESISTOR
R320	QRD161J-102	RESISTOR
R321	QRD161J-561	RESISTOR
R322	QRD161J-471	RESISTOR
R323	QRD161J-272	RESISTOR
R324	QRD161J-391	RESISTOR
R325	QRD161J-223	RESISTOR
R326	QRD161J-561	RESISTOR
R327	QRD161J-333	RESISTOR
R328	QRD161J-102	RESISTOR
R329	QRD161J-222	RESISTOR
R330	QRD161J-561	RESISTOR
R331	QRD161J-561	RESISTOR
R332	QRD161J-393	RESISTOR
R333	QRD161J-223	RESISTOR
R334	QRD161J-221	RESISTOR
R335	QRD161J-391	RESISTOR
R336	QRD161J-681	RESISTOR
R337	QRD161J-333	RESISTOR
R338	QRD161J-333	RESISTOR
R339	QRD161J-151	RESISTOR
R340	QRD161J-272	RESISTOR
R341	QRD161J-391	RESISTOR
R342	QRD161J-561	RESISTOR
R343	QRD161J-393	RESISTOR
R344	QRD161J-332	RESISTOR
R345	QRD161J-472	RESISTOR
R346	QRD161J-103	RESISTOR
R347	QRD161J-473	RESISTOR
R349	QRD161J-122	RESISTOR
R350	QRD161J-471	RESISTOR
R351	QRD161J-102	RESISTOR
R352	QRD161J-102	RESISTOR
R353	QVZ3518-222	V RESISTOR,
R354	QRD161J-272	RESISTOR
R355	QVZ3518-222	V RESISTOR,
R357	QRD161J-333	RESISTOR
R358	QRD161J-223	RESISTOR
R359	QRD161J-223	RESISTOR
R360	QRD161J-102	RESISTOR
R361	QRD161J-332	RESISTOR
R362	QRD161J-103	RESISTOR
R363	QRD161J-103	RESISTOR
R364	QRD161J-223	RESISTOR
R366	QRD161J-103	RESISTOR
R367	QRD161J-473	RESISTOR
R368	QRD161J-332	RESISTOR
R371	QRD161J-681	RESISTOR
R372	QRD161J-102	RESISTOR

#A REF NO. PART NO. PART NAME, DESCRIPTION

R401 QRD161J-103 RESISTOR  
 R402 QRD161J-0R0 RESISTOR  
 R403 QRD161J-152 RESISTOR  
 R404 QRD161J-391 RESISTOR  
 R405 QVZ3518-221 V. RESISTOR,  
 R406 QRD161J-181 RESISTOR  
 R407 QRD161J-333 RESISTOR  
 R408 QRD161J-562 RESISTOR  
 R410 QRD161J-331 RESISTOR

R425 QRD161J-103 RESISTOR  
 R426 QRD161J-103 RESISTOR  
 R427 QRD161J-681 RESISTOR  
 R430 QRD161J-682 RESISTOR  
 R440 QRD161J-153 RESISTOR

R574 QRD161J-182 RESISTOR

C301 QETC1HM-105 E CAPACITOR  
 C302 QETC1HM-105 E CAPACITOR  
 C303 QCC31CJ-223 CAPACITOR  
 C304 QETCOJM-107 E CAPACITOR  
 C305 QETC1HM-105 E CAPACITOR  
 C307 QCSB1HJ-330 CAPACITOR  
 C308 QCSB1HJ-390 CAPACITOR  
 C309 QFN41HJ-473 M CAPACITOR  
 C310 QCSB1HJ-560 CAPACITOR

C311 QEK60JM-476 E CAPACITOR  
 C312 QCVB1CN-103 CAPACITOR  
 C314 QCB1HJ-820 CAPACITOR  
 C315 QCC31CK-682 CAPACITOR  
 C316 QCVB1CN-103 CAPACITOR  
 C317 QCVB1CN-222 CAPACITOR  
 C318 QCB1HJ-820 CAPACITOR  
 C319 QCSB1HJ-100 CAPACITOR  
 C320 QCVB1CN-103 CAPACITOR

C321 QETC1HM-105 E CAPACITOR  
 C322 QETC1HM-104 E CAPACITOR  
 C323 QEK61EM-475 E CAPACITOR  
 C324 QCC31CK-104 CAPACITOR  
 C325 QETCOJM-337 E CAPACITOR  
 C326 QCC31CK-563 CAPACITOR  
 C327 QETCOJM-107 E CAPACITOR  
 C328 QETC1EM-335 E CAPACITOR  
 C329 QETCOJM-337 E CAPACITOR  
 C330 QETB1HM-474 E CAPACITOR

C331 QETC1HM-474 E CAPACITOR  
 C332 QETC1HM-474 E CAPACITOR  
 C333 QEK61HM-474 E CAPACITOR  
 C334 QETC1HM-474 E CAPACITOR  
 C335 QETC1CM-106 E CAPACITOR  
 C336 QCVB1CN-103 CAPACITOR  
 C337 QCB1HJ-121 CAPACITOR  
 C338 QCVB1CN-103 CAPACITOR  
 C339 QCVB1CN-103 CAPACITOR

C341 QCVB1CN-103 CAPACITOR  
 C342 QCSB1HJ-100 CAPACITOR  
 C343 QCVB1CN-103 CAPACITOR  
 C345 QCVB1CN-103 CAPACITOR  
 C346 QCVB1CN-103 CAPACITOR  
 C347 QCSB1HJ-390 CAPACITOR  
 C348 QCVB1CN-103 CAPACITOR  
 C349 QCVB1CN-103 CAPACITOR  
 C350 QCVB1CN-103 CAPACITOR

C351 QCVB1CN-103 CAPACITOR  
 C352 QEK60JM-476 E CAPACITOR  
 C353 QCVB1CN-103 CAPACITOR  
 C355 QCVB1CN-103 CAPACITOR  
 C356 QER61HM-105 E CAPACITOR  
 C357 QER61EM-475 E CAPACITOR

#A REF NO. PART NO. PART NAME, DESCRIPTION

C401 QCVB1CN-103 CAPACITOR  
 C402 QCVB1CN-103 CAPACITOR  
 C403 QCVB1CN-103 CAPACITOR  
 C404 QEK51CM-476 E CAPACITOR  
 C405 QCVB1CN-103 CAPACITOR  
 C406 QCVB1CN-103 CAPACITOR  
 C407 QCVB1CN-103 CAPACITOR  
 C408 QCVB1CN-103 CAPACITOR  
 C409 QEK51CM-476 E CAPACITOR  
 C410 QCVB1CN-103 CAPACITOR

C411 QCVB1CN-103 CAPACITOR  
 C412 QEK51CM-476 E CAPACITOR

C421 QCVB1CN-103 CAPACITOR  
 C423 QCVB1CN-103 CAPACITOR  
 C424 QEK51CM-476 E CAPACITOR  
 C425 QETC1HM-474 E CAPACITOR  
 C426 QEK61AM-476 E CAPACITOR  
 C427 QCVB1CN-103 CAPACITOR  
 C428 QCSB1HJ-390 CAPACITOR

C431 QCVB1CN-103 CAPACITOR

C450 QCVB1CN-103 CAPACITOR

L301 PU48530-101K COIL  
 L303 PU48530-101K COIL  
 L304 PU59152-390J COIL  
 L305 PU48530-222J COIL  
 L306 PU59152-221J COIL  
 L307 PU48530-821J COIL  
 L308 PU48530-101K COIL  
 L309 PU59152-100J COIL  
 L310 PU59152-100J COIL

L311 PU59153-822J COIL  
 L312 PU59153-101K COIL  
 L313 PU59153-101K COIL  
 L314 PU48530-101K COIL  
 L315 PU59152-560J COIL  
 L316 PU59152-150J COIL  
 L317 PU48530-101K COIL

L401 PU48530-101K COIL  
 L402 PU48530-101K COIL  
 L403 PU48530-101K COIL  
 L404 PU59152-100J COIL  
 L405 PU59152-100J COIL  
 L406 PU48530-101K COIL  
 L407 PU59152-330J COIL

EQ301 PU60811-2 EQUALIZER

LPF301 PU58022 LOW PASS FILTER

BPF301 PU57072 BAND PASS FILTER  
 OR PU57072-2 BAND PASS FILTER  
 BPF302 PU60654 BAND PASS FILTER  
 OR PU60654-2 BAND PASS FILTER

△ CF301 PU57073 CERAMIC FILTER

DL301 PU58971-3 COMB FILTER  
 DL302 PGZ00975-02 DELAY LINE

△ X301 PU60653 CRYSTAL UNITS

T301 PU49057 LC BLOCK

--VIDEO SUB 1-1 BOARD ASSY--

PWBA1 PRK30092A1 VIDEO SUB1-1 BOARD ASSY

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	IC23	AN3916	IC
	R523	QRSA08J-820YN	RESISTOR
	R524	QRSA08J-101YN	RESISTOR
	R525	QRSA08J-102YN	RESISTOR
	C213	QCFA1HZ-103	CAPACITOR
	C214	QEK61EM-475	E CAPACITOR
	C215	QEK61EM-475	E CAPACITOR
	C216	QCFA1HZ-473	CAPACITOR
	C217	QEK61CM-476	E CAPACITOR
	C218	QCFA1HZ-103	CAPACITOR
	C219	QCYA1HK-332	CAPACITOR
--VIDEO SUB 1-2 BOARD ASSY--			
PWBA2	PRK30092A2		VIDEO SUB1-2 BOARD ASSY
	IC4	HA118070	IC
	Q11	2SA1037K	TRANSISTOR
	R22	QRSA08J-331YN	RESISTOR
	R24	QRSA08J-122YN	RESISTOR
	R182	QRSA08J-101YN	RESISTOR
	R183	QRSA08J-0R0Y	RESISTOR
	C41	QCFA1HZ-103	CAPACITOR
	C42	QEK61CM-106	E CAPACITOR
	C45	QCFA1HZ-103	CAPACITOR
	C46	QCFA1HZ-103	CAPACITOR
	L5	PU48530-101K	COIL
--VIDEO SUB 1-4 BOARD ASSY--			
PWBA3	PRK30092A4		VIDEO SUB1-4 BOARD ASSY
	IC15	BA7021	IC
	Q55	2SA1037K	TRANSISTOR
	R199	QRSA08J-121YN	RESISTOR
	R200	QRSA08J-102YN	RESISTOR
	C140	QEK60JM-476	E CAPACITOR
	C141	QCFA1HZ-103	CAPACITOR
	C142	QEP41HM-105	NP E CAPACITOR
	C143	QEK61HM-104	E CAPACITOR
	C150	QCSA1HJ-151	CAPACITOR
	L12	PU48530-100K	COIL
--VIDEO SUB 1-6 BOARD ASSY--			
PWBA4	PRK30092A6		VIDEO SUB1-6 BOARD ASSY
	IC14	AN6041	IC
	Q41	2SC2412K	TRANSISTOR
	D34	RD9.1ESB2	ZENER DIODE
	R145	QRSA08J-562YN	RESISTOR
	R146	QRSA08J-682YN	RESISTOR
	R148	QRSA08J-271YN	RESISTOR
	R156	QRSA08J-221YN	RESISTOR
	C126	QEK61AM-476	E CAPACITOR
	C127	QCFA1HZ-103	CAPACITOR
	C129	QCSA1HJ-7R0	CAPACITOR

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	C130	QETC0JM-476	E CAPACITOR
	C131	QCFA1HZ-103	CAPACITOR
	C132	QETC1AM-476	E CAPACITOR
	C133	QCFA1HZ-103	CAPACITOR
	C134	QCFA1HZ-103	CAPACITOR
	C135	QETC1CM-476	E CAPACITOR
	C139	QCFA1HZ-103	CAPACITOR
	C144	QCFA1HZ-103	CAPACITOR
	L33	PU59152-180J	COIL
--VIDEO SUB 1-7 BOARD ASSY--			
PWBA5	PRK30092A9		VIDEO SUB1-9 BOARD ASSY
	IC24	MSM6967RS	IC
	IC26	MSM6967RS	IC
	Q106	2SA1037K	TRANSISTOR
	Q108	2SA1037K	TRANSISTOR
	R470	QRSA08J-562YN	RESISTOR
	R485	QRSA08J-562YN	RESISTOR
	R560	QRSA08J-562YN	RESISTOR
	R561	QRSA08J-562YN	RESISTOR
	C225	QCFA1HZ-103	CAPACITOR
	C226	QCFA1HZ-103	CAPACITOR
	C227	QEK61EM-475	E CAPACITOR
	C228	QEK61AM-226	E CAPACITOR
	C229	QCFA1HZ-103	CAPACITOR
	C230	QCFA1HZ-103	CAPACITOR
	C231	QEK61CM-226	E CAPACITOR
	C232	QCSA1HJ-120	CAPACITOR
	C239	QCFA1HZ-103	CAPACITOR
	C240	QCFA1HZ-103	CAPACITOR
	C241	QEK61EM-475	E CAPACITOR
	C242	QEK61AM-226	E CAPACITOR
	C243	QCFA1HZ-103	CAPACITOR
	C244	QCFA1HZ-103	CAPACITOR
	C245	QEK61CM-226	E CAPACITOR
	C246	QCSA1HJ-120	CAPACITOR
	L55	PGZ00354	COIL
	L56	PGZ00354	COIL
	L57	PU59152-560J	COIL
	L59	PGZ00354	COIL
	L60	PGZ00354	COIL
	L61	PU59152-560J	COIL
	SLD1	PU60840	SHIELD CASE
	SLD2	PU60841	SHIELD PLATE
--VIDEO SUB 1-8 BOARD ASSY--			
PWBA6	PRK30092A7		VIDEO SUB1-7 BOARD ASSY
	Q118	2SA1037K	TRANSISTOR
	Q122	2SK665	CHIP DIGI MOS
	R517	QRSA08J-223YN	RESISTOR
	R518	QRSA08J-223YN	RESISTOR
	R519	QRSA08J-103YN	RESISTOR
	R531	QRSA08J-123YN	RESISTOR
	R532	QRSA08J-272YN	RESISTOR

<03><04>

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
	C278	QCSA1HJ-121	CAPACITOR
	C279	QCSA1HJ-121	CAPACITOR
	L70	PU58308-103J	COIL
	CN203	PGZ01081-05	CONNECTOR
--VIDEO SUB 1-9 BOARD ASSY--			
	PWBA7	PRK30092A8	VIDEO SUB1-8 BOARD ASSY
	Q124	2SA1037K	TRANSISTOR
	Q125	2SK665	CHIP DIGI MOS
	Q126	2SK665	CHIP DIGI MOS
	R534	QRSA08J-223YN	RESISTOR
	R535	QRSA08J-223YN	RESISTOR
	R536	QRSA08J-103YN	RESISTOR
	R537	QRSA08J-123YN	RESISTOR
	R538	QRSA08J-272YN	RESISTOR
	R539	QRSA08J-272YN	RESISTOR
	C280	QCSA1HJ-390	CAPACITOR
	C281	QCSA1HJ-390	CAPACITOR
	L71	PU58308-103J	COIL
	CN204	PGZ01081-05	CONNECTOR
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* 7. AUDIO BOARD ASSY<04> *			
*****			
	PWBA	PRK20147A	AUDIO BOARD ASSY
	IC601	BA7751ALS	IC
	Q601	2SC1740S(RS)	TRANSISTOR
	Q603	2SC1740S(RS)	TRANSISTOR
	Q605	2SC1740S(RS)	TRANSISTOR
	Q606	DTA124ES	TRANSISTOR
	Q607	DTA114ES	TRANSISTOR
	Q608	2SC1740S(RS)	TRANSISTOR
	Q609	2SC1740S(RS)	TRANSISTOR
	Q610	2SC1740S(RS)	TRANSISTOR
	Q611	DTA144ES	TRANSISTOR
	Q612	DTA114ES	TRANSISTOR
	Q613	DTC144EF	TRANSISTOR
	Q614	DTC144EF	TRANSISTOR
	D601	1SS133	DIODE
	OR	MA165	DIODE
	D602	1SS133	DIODE
	OR	MA165	DIODE
	D604	1SS133	DIODE
	R601	QRD161J-473	RESISTOR
	R602	QRD161J-152	RESISTOR
	R603	QRD161J-222	RESISTOR
	R608	QRD161J-152	RESISTOR
	R609	QRD161J-222	RESISTOR
	R613	QRD161J-223	RESISTOR
	R616	QRD161J-122	RESISTOR
	R617	QRD161J-122	RESISTOR
	R620	QRD161J-103	RESISTOR

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R621	QRD161J-333	RESISTOR
	R623	QRD161J-223	RESISTOR
	R625	QRD161J-223	RESISTOR
	R626	QRD161J-100	RESISTOR
	R627	QRD161J-470	RESISTOR
	R628	QRD161J-223	RESISTOR
	R629	QRD161J-331	RESISTOR
	R630	QRD161J-224	RESISTOR
	R631	QRD161J-123	RESISTOR
	R632	QRD161J-562	RESISTOR
	R633	QVZ3521-103	V RESISTOR,
	R634	QRD161J-103	RESISTOR
	R635	QRD161J-122	RESISTOR
	R636	QRD161J-472	RESISTOR
	R637	QRD161J-393	RESISTOR
	R638	QRD161J-273	RESISTOR
	R639	QRD161J-122	RESISTOR
	R640	QRD161J-181	RESISTOR
	R641	QVZ3521-473	RESISTOR
	R642	QRD161J-333	RESISTOR
	R643	QRD161J-2R2	RESISTOR
	R644	QRD161J-104	RESISTOR
	△ R645	QRD161J-270	RESISTOR
	R646	QRD161J-103	RESISTOR
	R647	QRD161J-332	RESISTOR
	R648	QRD161J-103	RESISTOR
	C601	QEK51CM-336	E CAPACITOR
	C602	QEK61HM-105	E CAPACITOR
	C603	QCXB1CM-682	CAPACITOR
	C604	QEK61CM-336	E CAPACITOR
	C605	QEK61EM-475	E CAPACITOR
	C606	QFLB1HJ-182	M CAPACITOR
	C607	QFLB1HJ-222	M CAPACITOR
	C608	PU60550-105	E CAPACITOR
	C609	QEK61CM-106	E CAPACITOR
	C610	QFV81HJ-103	TF CAPACITOR
	C611	QEK61HM-224	E CAPACITOR
	C612	QEK61HM-105	E CAPACITOR
	C613	QEK61CM-226	E CAPACITOR
	C614	QEK61HM-225	E CAPACITOR
	C615	QEK61HM-106	E CAPACITOR
	C616	QEK61CM-106	E CAPACITOR
	C617	QFV81HJ-273	TF CAPACITOR
	C618	QFV81HJ-153	TF CAPACITOR
	C619	QCBB1HJ-331	CAPACITOR
	C620	QFV81HJ-683	TF CAPACITOR
	C621	QEK61CM-476	E CAPACITOR
	C622	QCXB1CN-122	CAPACITOR
	C623	QCC31EJ-472	CAPACITOR
	C624	QCC31EK-272	CAPACITOR
	C625	QEK61CM-106	E CAPACITOR
	C626	QFP42AF-682M	PP CAPACITOR
	C627	QFN31HK-222	M CAPACITOR
	C628	QEK41CM-107	E CAPACITOR
	C629	QFV81HJ-103	M CAPACITOR
	L601	PU58308-103J	COIL
	△ K603	PGZ00354	FERRITE BEADS
	△ K604	PGZ00354	FERRITE BEADS
	△ T601	PU59949	OSC TRANSFORMER
	TP631	PU54983	TEST PIN, X4(TP631-634)
	CN2	PU58844-102	CONNECTOR
	CN14	PU58844-104	CONNECTOR
	CN15	PU58844-104R	CONNECTOR



#	REF NO.	PART NO.	PART NAME, DESCRIPTION
	CN16	PU58844-103	CONNECTOR
	CN17	PU58844-104	CONNECTOR
	CN30	PU58844-102Y	CONNECTOR
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*****			
* 8. D/C SERVO BOARD ASSY<05> *			
*****			
PWBA	PRK10029C	D/C SERVO BOARD ASSY	
IC1	HD49722NT	IC	
IC2	BU2767S	IC	
IC3	TC4S66F	IC	
Q1	DTC144EU	TRANSISTOR	
Q2	DTC144EU	TRANSISTOR	
Q3	DTA124EU	TRANSISTOR	
Q4	DAN202U	DIODE	
Q5	DTC124EU	TRANSISTOR	
Q6	DTC144EU	TRANSISTOR	
Q7	DTA144EU	TRANSISTOR	
Q8	DTA124EU	TRANSISTOR	
Q9	DTA124EU	TRANSISTOR	
Q10	DTA124EU	TRANSISTOR	
Q11	DTA124EU	TRANSISTOR	
D1	1SS133	DIODE	
D2	1SS133	DIODE	
D3	1SS133	DIODE	
D4	1SS133	DIODE	
D5	1SS133	DIODE	
D6	1SS133	DIODE	
D7	1SS133	DIODE	
D8	1SS133	DIODE	
D9	1SS133	DIODE	
D10	1SS133	DIODE	
D11	1SS133	DIODE	
D12	1SS133	DIODE	
D13	1SS133	DIODE	
D14	1SS133	DIODE	
D15	1SS133	DIODE	
D16	1SS133	DIODE	
D17	1SS133	DIODE	
D18	1SS133	DIODE	
D19	1SS133	DIODE	
D20	1SS133	DIODE	
D21	1SS133	DIODE	
D22	1SS133	DIODE	
D23	1SS133	DIODE	
D24	1SS133	DIODE	
R1	QRSA08J-104YN	RESISTOR	
R2	QRSA08J-562YN	RESISTOR	
R3	QRSA08J-273YN	RESISTOR	
R4	QRSA08J-473YN	RESISTOR	
R5	QRSA08J-203YN	RESISTOR	
R6	QRSA08J-392YN	RESISTOR	
R7	QRSA08J-204YN	RESISTOR	
R8	QRSA08J-123YN	RESISTOR	
R9	QRSA08J-332YN	RESISTOR	
R10	QRSA08J-273YN	RESISTOR	
R11	QRSA08J-124YN	RESISTOR	
R12	QRSA08J-103YN	RESISTOR	
R13	QRSA08J-102YN	RESISTOR	
R14	QRSA08J-334YN	RESISTOR	

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
R15	QRSA08J-564YN	RESISTOR	
R16	QVZ3521-334	V RESISTOR, SP SLOW TK	
R17	QRSA08J-184YN	RESISTOR	
R18	QVZ3521-334	V RESISTOR, LP SLOW TK	
R19	QRSA08J-274YN	RESISTOR	
R20	QRSA08J-185YN	RESISTOR	
R21	QRSA08J-683YN	RESISTOR	
R22	QRSA08J-103YN	RESISTOR	
R23	QRSA08J-102YN	RESISTOR	
R24	QRSA08J-223YN	RESISTOR	
R26	QRSA08J-334YN	RESISTOR	
R27	QRSA08J-392YN	RESISTOR	
R28	QRSA08J-103YN	RESISTOR	
R29	QRSA08J-104YN	RESISTOR	
R30	QRSA08J-222YN	RESISTOR	
R31	QRSA08J-823YN	RESISTOR	
R32	QRSA08J-105YN	RESISTOR	
R33	QRSA08J-393YN	RESISTOR	
R34	QRSA08J-333YN	RESISTOR	
R35	QRSA08J-683YN	RESISTOR	
R36	QRSA08J-153YN	RESISTOR	
R37	QRSA08J-223YN	RESISTOR	
R38	QRSA08J-105YN	RESISTOR	
R39	QRSA08J-103YN	RESISTOR	
R40	QRSA08J-102YN	RESISTOR	
R41	QRSA08J-103YN	RESISTOR	
R42	QRSA08J-123YN	RESISTOR	
R43	QRSA08J-274YN	RESISTOR	
R44	QRSA08J-105YN	RESISTOR	
R45	QRSA08J-105YN	RESISTOR	
R46	QRSA08J-273YN	RESISTOR	
R47	QRSA08J-222YN	RESISTOR	
R48	QRSA08J-563YN	RESISTOR	
R49	QRSA08J-105YN	RESISTOR	
R50	QRSA08J-273YN	RESISTOR	
R51	QRSA08J-154YN	RESISTOR	
R52	QRSA08J-154YN	RESISTOR	
R54	QRSA08J-102YN	RESISTOR	
R55	QVZ3521-684	V RESISTOR, SW POINT	
R56	QRSA08J-104YN	RESISTOR	
R57	QRSA08J-154YN	RESISTOR	
R58	QRSA08J-222YN	RESISTOR	
R59	QVZ3521-474	V RESISTOR, LP X2 TR	
R60	QVZ3521-474	V RESISTOR, LP TR PRE	
R61	QVZ3521-474	V RESISTOR, SP X2 TR	
R62	QRSA08J-103YN	RESISTOR	
R63	QRSA08J-102YN	RESISTOR	
R64	QRSA08J-155YN	RESISTOR	
R66	QRSA08J-102YN	RESISTOR	
R67	QRSA08J-102YN	RESISTOR	
R68	QRSA08J-102YN	RESISTOR	
R69	QRSA08J-102YN	RESISTOR	
R70	QRSA08J-104YN	RESISTOR	
R71	QRSA08J-332YN	RESISTOR	
R72	QRSA08J-102YN	RESISTOR	
R73	QRSA08J-182YN	RESISTOR	
R74	QRSA08J-104YN	RESISTOR	
R75	QRSA08J-0R0Y	RESISTOR	
R76	QRSA08J-0R0Y	RESISTOR	
R77	QRD161J-102	RESISTOR	
B1	QRSA08J-0R0Y	RESISTOR, X46	
B120	QRD161J-562	RESISTOR	
C1	QFV71HJ-224	TF CAPACITOR	
C2	QFV71HJ-563	TF CAPACITOR	
C3	QFV71HJ-124	TF CAPACITOR	

<05><06>

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
C4		QFV71HJ-104	TF CAPACITOR
C5		QFV71HJ-393	TF CAPACITOR
C6		QEK61CM-226MZ	E CAPACITOR
C7		QCYA1HK-102	CAPACITOR
C8		QEK61CM-226MZ	E CAPACITOR
C9		QCC11CK-102	CAPACITOR
C10		QCTA1CH-101	CAPACITOR
C11		QCBBIHJ-101	CAPACITOR
C14		QFV71HJ-474	TF CAPACITOR
C16		QCYA1HK-102	CAPACITOR
C17		QCYA1HK-103	CAPACITOR
C18		QEK61CM-226MZ	E CAPACITOR
C19		QFV71HJ-334	TF CAPACITOR
C20		QFLC1HJ-682Z	M CAPACITOR
C21		QEK61EM-475MZ	E CAPACITOR
C22		QEK61EM-475MZ	E CAPACITOR
C23		QEK61CM-106MZ	E CAPACITOR
C24		QEK61CM-106MZ	E CAPACITOR
C25		QENC1HM-105	NP E CAPACITOR
C26		QFV71HJ-104	TF CAPACITOR
C27		QCYA1HK-102	CAPACITOR
C28		QCTA1CH-471	CAPACITOR
C29		QFLC1HJ-682Z	M CAPACITOR
C30		QFLC1HJ-102Z	M CAPACITOR
C31		QFV71HJ-124	TF CAPACITOR
C33		QCYA1HK-102	CAPACITOR
C34		QEK61AM-226MZ	E CAPACITOR
C35		QCTA1CH-101	CAPACITOR
C36		QEK61AM-226MZ	E CAPACITOR
C37		QCTA1CH-150	CAPACITOR
C38		QEK61HM-105	E CAPACITOR
C39		QEK61HM-105	E CAPACITOR
C40		QCYA1HK-103	CAPACITOR
C41		QCYA1HK-102	CAPACITOR
C42		QEK61CM-226MZ	E CAPACITOR
C43		QCTA1CH-101	CAPACITOR
C44		QCYA1HK-102	CAPACITOR
C46		QFV71HJ-394	TF CAPACITOR
L1		PU48530-101K	COIL
L2		PU48530-101K	COIL
L3		PU48530-100K	COIL
TH1		NTH5D223KA	THERMISTOR
	OR	NTH5D223LA	THERMISTOR
TP1		PU56008	TEST-PIN, X9 (TP1-9)
CN1		PU58844-3	CONNECTOR
CN2		PU58931-16	CONNECTOR
CN3		PU58844-5	CONNECTOR
CN4		PU58844-7R	CONNECTOR
CN5		PU58844-7	CONNECTOR
CN6		PU58844-5Y	CONNECTOR
CN7		PU58931-20	CONNECTOR
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*****			
* 9. TL SERVO BOARD ASSY<06> *			
*****			
PWBA		PRK10103A	TIME LAPSE SERVO BOARD ASSY
△ ICP1		ICP-F38	CIRCUIT PROTECTOR
IC1		NJM2904M	IC
IC2		NJM2904M	IC

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
IC3		NJM2903M	IC
IC4		UPD4030BG	IC
IC5		TA78L005AP	IC
IC6		TA78L009AP	IC
IC7		NJM2904M	IC
IC8		NJM2904M	IC
IC9		UPD4053BG	IC
IC10		NJM2904M	IC
IC11		NJM2903M	IC
IC12		UPD4053BG	IC
IC13		BA6302AF	IC
IC14		NJM2904M	IC
IC15		NJM2903M	IC
IC16		UPD4013BG	IC
IC17		MN1280P	IC
IC18		UPD4013BG	IC
IC19		UPD4069UBG	IC
IC20		UPD4081BG	IC
IC21		UPD4081BG	IC
IC22		UPD4538BG	IC
IC23		UPD78P138GF019C	IC
	OR	UPD78134GF-019	IC
IC24		IC-PST523H-2	IC
IC25		UPD4538BG	IC
IC26		UPD4538BG	IC
IC27		BA6302AF	IC
IC28		NJM2903M	IC
Q1		2SD973AQ,R,S	TRANSISTOR
Q2		DTC124EK	TRANSISTOR
Q3		2SD973AQ,R,S	TRANSISTOR
Q4		DTC124EK	TRANSISTOR
Q5		DTC124EK	TRANSISTOR
Q6		DTC124EK	TRANSISTOR
Q7		DTC124EK	TRANSISTOR
Q8		DTC124EK	TRANSISTOR
Q9		DTC124EK	TRANSISTOR
D1		1SS133	DIODE
D2		DA204K	DIODE
D4		DAN202K	CHIP DIODE ARRAY
D5		DAN202K	CHIP DIODE ARRAY
D6		DAN202K	CHIP DIODE ARRAY
D7		1SS133	DIODE
D8		1SS133	DIODE
D9		1SS133	DIODE
D10		1SS133	DIODE
D11		1SS133	DIODE
D12		DAN202K	CHIP DIODE ARRAY
D13		RD7.5ES-T1B2	ZENER DIODE
D14		1SS133	DIODE
D15		1SS133	DIODE
D16		1SS133	DIODE
D17		1SS133	DIODE
D18		1SS133	DIODE
D19		1SS133	DIODE
R1		QRSA08J-102YN	RESISTOR
R2		QRSA08J-333YN	RESISTOR
R3		QRSA08J-103YN	RESISTOR
R4		QVPC610-102	V RESISTOR,
R5		QRSA08J-103YN	RESISTOR
R6		QRSA08J-102YN	RESISTOR
R7		QRSA08J-102YN	RESISTOR
R8		QRSA08J-333YN	RESISTOR
R9		QRSA08J-103YN	RESISTOR
R10		QVPC610-102	V RESISTOR,
R11		QRSA08J-103YN	RESISTOR
R12		QRSA08J-222YN	RESISTOR
R13		QRSA08J-105YN	RESISTOR

#△ REF NO. PART NO. PART NAME, DESCRIPTION

R14 QRSA08J-103YN RESISTOR  
 R15 QRSA08J-103YN RESISTOR  
 R16 QRSA08J-222YN RESISTOR  
 R17 QRSA08J-105YN RESISTOR  
 R18 QRSA08J-103YN RESISTOR  
 R19 QRSA08J-103YN RESISTOR  
 R20 QRSA08J-104YN RESISTOR

R22 QRSA08J-102YN RESISTOR  
 R23 QRSA08J-102YN RESISTOR  
 R24 QRSA08J-104YN RESISTOR  
 R25 QRSA08J-102YN RESISTOR  
 R27 QRSA08J-103YN RESISTOR  
 R28 QRSA08J-182YN RESISTOR  
 R29 QRSA08J-123YN RESISTOR  
 R30 QRSA08J-102YN RESISTOR

R31 QRSA08J-683YN RESISTOR  
 R32 QRSA08J-103YN RESISTOR  
 R33 QRSA08J-103YN RESISTOR  
 R34 QRSA08J-223YN RESISTOR  
 R35 QRSA08J-223YN RESISTOR  
 R36 QRSA08J-223YN RESISTOR  
 R37 QRSA08J-223YN RESISTOR  
 R38 QVPC610-104 V RESISTOR,  
 R39 QRSA08J-223YN RESISTOR  
 R40 QRSA08J-122YN RESISTOR

R41 QRSA08J-103YN RESISTOR  
 R42 QRSA08J-103YN RESISTOR  
 R43 QVPC610-332 V RESISTOR,  
 R44 QRSA08J-103YN RESISTOR  
 R45 QVPC610-472 V RESISTOR,  
 R46 QRSA08J-103YN RESISTOR  
 R47 QRSA08J-684YN RESISTOR  
 R48 QRSA08J-682YN RESISTOR  
 R49 QRSA08J-103YN RESISTOR  
 R50 QRSA08J-103YN RESISTOR

R51 QRSA08J-102YN RESISTOR  
 R52 QRSA08J-103YN RESISTOR  
 R53 QRSA08J-104YN RESISTOR  
 R54 QRSA08J-102YN RESISTOR  
 R55 QRSA08J-102YN RESISTOR  
 R56 QVPC610-154 V RESISTOR,  
 R57 QRSA08J-224YN RESISTOR  
 R58 QRSA08J-333YN RESISTOR  
 R59 QRSA08J-223YN RESISTOR  
 R60 QRSA08J-223YN RESISTOR

R61 QRSA08J-103YN RESISTOR  
 R62 QVZ3521-103 V RESISTOR,  
 R63 QRSA08J-104YN RESISTOR  
 R64 QRSA08J-682YN RESISTOR  
 R65 QRSA08J-104YN RESISTOR  
 R66 QRSA08J-104YN RESISTOR  
 R67 QRSA08J-104YN RESISTOR  
 R69 QRSA08J-103YN RESISTOR  
 R70 QRSA08J-223YN RESISTOR

R71 QRSA08J-102YN RESISTOR  
 R72 QRSA08J-103YN RESISTOR  
 R73 QRSA08J-473YN RESISTOR  
 R74 QRSA08J-333YN RESISTOR  
 R75 QVZ3521-103 V RESISTOR,  
 R76 QRSA08J-103YN RESISTOR  
 R77 QRSA08J-104YN RESISTOR  
 R78 QRSA08J-104YN RESISTOR  
 R79 QRSA08J-102YN RESISTOR  
 R80 QRSA08J-104YN RESISTOR

R81 QRSA08J-103YN RESISTOR  
 R82 QRSA08J-104YN RESISTOR  
 R83 QRSA08J-104YN RESISTOR

#△ REF NO. PART NO. PART NAME, DESCRIPTION

R84 QRSA08J-102YN RESISTOR  
 R85 QRSA08J-102YN RESISTOR  
 R86 QRSA08J-104YN RESISTOR  
 R87 QVZ3521-224 V RESISTOR,  
 R88 QRSA08J-124YN RESISTOR  
 R89 QRSA08J-103YN RESISTOR  
 R90 QRSA08J-102YN RESISTOR

R91 QRSA08J-563YN RESISTOR  
 R92 QRSA08J-103YN RESISTOR  
 R93 QRSA08J-102YN RESISTOR  
 R94 ERT-D2FHL103S THERMISTOR  
 R95 QRSA08J-102YN RESISTOR  
 R96 QRSA08J-124YN RESISTOR  
 R97 QVZ3521-224 V RESISTOR,  
 R98 QRSA08J-102YN RESISTOR  
 R100 QRSA08J-102YN RESISTOR

R101 QRSA08J-102YN RESISTOR  
 R102 QRSA08J-102YN RESISTOR  
 R103 QRSA08J-102YN RESISTOR  
 R104 QRSA08J-103YN RESISTOR  
 R105 QRSA08J-103YN RESISTOR  
 R106 QRSA08J-OR0Y RESISTOR  
 R107 QRSA08J-102YN RESISTOR  
 R108 QRSA08J-103YN RESISTOR  
 R110 QRSA08J-123YN RESISTOR

R111 QRSA08J-102YN RESISTOR  
 R112 QRSA08J-333YN RESISTOR  
 R113 QRSA08J-681YN RESISTOR  
 R114 QRSA08J-103YN RESISTOR  
 R115 QRSA08J-103YN RESISTOR  
 R116 QRSA08J-103YN RESISTOR  
 R117 QRSA08J-103YN RESISTOR  
 R118 QRSA08J-103YN RESISTOR  
 R119 QRSA08J-103YN RESISTOR  
 R120 QRSA08J-103YN RESISTOR

R121 QRSA08J-103YN RESISTOR  
 R122 QRSA08J-103YN RESISTOR  
 R123 QRSA08J-102YN RESISTOR  
 R124 QRSA08J-102YN RESISTOR  
 R125 QRSA08J-103YN RESISTOR  
 R126 QRSA08J-102YN RESISTOR  
 R127 QRSA08J-103YN RESISTOR  
 R128 QRSA08J-102YN RESISTOR  
 R129 QRSA08J-103YN RESISTOR  
 R130 QRSA08J-102YN RESISTOR

R132 QRSA08J-103YN RESISTOR  
 R133 QRSA08J-103YN RESISTOR  
 R134 QRSA08J-102YN RESISTOR  
 R135 QRSA08J-102YN RESISTOR  
 R136 QRSA08J-102YN RESISTOR  
 R137 QRSA08J-102YN RESISTOR  
 R138 QRSA08J-102YN RESISTOR  
 R139 QRSA08J-102YN RESISTOR  
 R140 QRSA08J-102YN RESISTOR

R141 QRSA08J-102YN RESISTOR  
 R142 QRSA08J-102YN RESISTOR  
 R143 QRSA08J-102YN RESISTOR  
 R144 QRSA08J-102YN RESISTOR  
 R145 QRSA08J-103YN RESISTOR  
 R146 QRSA08J-102YN RESISTOR  
 R147 QCYA1HK-102 RESISTOR  
 R148 QRSA08J-102YN RESISTOR  
 R150 QRSA08J-102YN RESISTOR

R151 QRSA08J-102YN RESISTOR  
 R152 QRSA08J-102YN RESISTOR  
 R153 QRSA08J-682YN RESISTOR  
 R154 QRSA08J-154YN RESISTOR

<06><07>

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R155	QRSA08J-102YN	RESISTOR
	R156	QRSA08J-103YN	RESISTOR
	R157	QRD167J-0R0	RESISTOR
	R158	QRSA08J-124YN	RESISTOR
	R159	QRSA08J-103YN	RESISTOR
	R160	QRSA08J-103YN	RESISTOR
	R161	QRSA08J-333YN	RESISTOR
	R162	QRSA08J-333YN	RESISTOR
	R163	QVZ3521-474	V RESISTOR,
	R164	QVZ3521-474	V RESISTOR,
	R165	QRSA08J-274YN	RESISTOR
	R166	QVZ3521-224	V RESISTOR,
	R167	QRSA08J-183YN	RESISTOR
	R168	QRD167J-393	RESISTOR
	R169	QRSA08J-274YN	RESISTOR
	R170	QRSA08J-104YN	RESISTOR
	R171	QRSA08J-222YN	RESISTOR
	R172	QRSA08J-102YN	RESISTOR
	R173	QRSA08J-222YN	RESISTOR
	R174	QRSA08J-103YN	RESISTOR
	R175	QRV143F-3573	CMF RESISTOR
	R176	QVZ3521-104	V RESISTOR,
	R177	QRSA08J-334YN	RESISTOR
	R178	QRSA08J-823YN	RESISTOR
	R179	QVZ3521-473	RESISTOR
	R180	QRSA08J-223YN	RESISTOR
	R181	QRSA08J-682YN	RESISTOR
	R182	QRSA08J-223YN	RESISTOR
	R183	QRSA08J-103YN	RESISTOR
	R184	QRSA08J-102YN	RESISTOR
	R185	QRSA08J-0R0Y	RESISTOR
	R186	QRSA08J-102YN	RESISTOR
	R187	QRSA08J-102YN	RESISTOR
	R188	QRSA08J-561YN	RESISTOR
	R189	QRSA08J-103YN	RESISTOR
	C1	QCTA1CH-101	CAPACITOR
	C2	QER61CM-106GZ	E CAPACITOR
	C3	QCTA1CH-101	CAPACITOR
	C4	QER61CM-106GZ	E CAPACITOR
	C5	QCTA1CH-101	CAPACITOR
	C6	QCTA1CH-101	CAPACITOR
	C7	QFV41HJ-684	TF CAPACITOR
	C8	QER61CM-226	E CAPACITOR
	C9	QCYA1HK-103	CAPACITOR
	C10	QCYA1HK-103	CAPACITOR
	C11	QER61CM-226	E CAPACITOR
	C12	QCYA1HK-103	CAPACITOR
	C13	QER61CM-226	E CAPACITOR
	C14	QCYA1HK-103	CAPACITOR
	C15	QER61CM-226	E CAPACITOR
	C16	QCYA1HK-103	CAPACITOR
	C17	QER61CM-226	E CAPACITOR
	C18	QER61CM-226	E CAPACITOR
	C19	QCYA1HK-103	CAPACITOR
	C20	QCYA1HK-223	CAPACITOR
	C21	QCTA1CH-330	CAPACITOR
	C22	QCYA1HK-103	CAPACITOR
	C24	QER61CM-226	E CAPACITOR
	C25	QER61CM-226	E CAPACITOR
	C26	QCTA1CH-221	CAPACITOR
	C27	QFP42AJ-272	PP CAPACITOR
	C29	QFN31HJ-392	M CAPACITOR
	C30	QCYA1HK-102	CAPACITOR
	C31	QER61CM-226	E CAPACITOR
	C32	QER61HM-104GZ	E CAPACITOR
	C33	QCYA1HK-102	CAPACITOR
	C34	QER61HM-105GZ	E CAPACITOR

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	C35	QCYA1HK-102	CAPACITOR
	C36	QCYA1HK-102	CAPACITOR
	C37	QCYA1HK-102	CAPACITOR
	C38	QFN31HJ-103	M CAPACITOR
	C39	QCTA1CH-391	CAPACITOR
	C40	QER61CM-226	E CAPACITOR
	C41	QFN31HJ-103	M CAPACITOR
	C42	QCTA1CH-150	CAPACITOR
	C43	QCTA1CH-150	CAPACITOR
	C50	QER61CM-336	E CAPACITOR
	C51	QCYA1HK-223	CAPACITOR
	C52	QER61CM-106	E CAPACITOR
	C53	QCYA1HK-103	CAPACITOR
	C54	QCTA1CH-270	CAPACITOR
	C55	QCTA1CH-470	CAPACITOR
	C56	QER61HM-105GZ	E CAPACITOR
	C57	QFP42AJ-103	PP CAPACITOR
	C58	QCYA1HK-223	CAPACITOR
	C59	QFV71HJ-104	TF CAPACITOR
	C60	QFV71HJ-104	TF CAPACITOR
	C61	QFV71HJ-104	TF CAPACITOR
	C62	QFV71HJ-104	TF CAPACITOR
	C63	QER61CM-106	E CAPACITOR
	L1	PU53223-101J	COIL
	L2	PU53223-101J	COIL
	L3	PU53223-101J	COIL
△	X1	PEVB0335	CRYSTAL RESONATOR
△	TH1	PU52108-100K	POSITIVE THERMISTOR
	J1	QWE258-12A1A1	WIRE
	TP1	PU55774	TEST PIN,X6
	TP2	PU54983	TEST PIN, X15
	CN1	PU58844-5	CONNECTOR
	CN2	PU58844-5Y	CONNECTOR
	CN3	PU58929-20	HOUSING
	CN4	PU58929-20	HOUSING
	CN5	PU58844-4R	CONNECTOR
*****			
*****			
* 10. MECHACON BOARD ASSY<07> *			
*****			
	PWBA	PRK10093A-02	MECHACON BOARD ASSY
		PRK10093B-01	MECHACON BOARD ASSY
	IC1	M37524E4-285SP	IC (925E #170- -287)
		M37524E4-286SP	IC (920E #212- -288)
	IC2	BA6259N	IC
	IC3	M50255P	IC
	IC4	TC4021BP	IC
	IC5	M6M80011AP	IC
	IC6	M50253P	IC
	IC7	TC4W66F	IC
	IC8	TC7S04F	IC
	IC102	MN4053B	IC
	IC103	MN4053B	IC
	Q1	2SD973AR	TRANSISTOR
	Q2	DTC114EF	TRANSISTOR
	Q3	DTC114EF	TRANSISTOR
	Q4	2SD636R,S	TRANSISTOR

#A	REF NO.	PART NO.	PART NAME, DESCRIPTION	#A	REF NO.	PART NO.	PART NAME, DESCRIPTION
Q5		2SD636R,S	TRANSISTOR	R35		QRD161J-103	RESISTOR
Q6		2SD636R,S	TRANSISTOR	R36		QRD161J-103	RESISTOR
Q7		2SD973R	TRANSISTOR	R37		QRD161J-332	RESISTOR
Q8		DTC114EF	TRANSISTOR	R39		QRD161J-823	RESISTOR
Q9		DTA144EF	TRANSISTOR	R40		QRD161J-122	RESISTOR
Q11		DTC144ES	TRANSISTOR	R41		QRD161J-102	RESISTOR
Q12		DTC144ES	TRANSISTOR	R42		QRD161J-102	RESISTOR
Q13		DTC144ES	TRANSISTOR	R43		QRD161J-102	RESISTOR
Q101		DTA124EF	TRANSISTOR	R44		QRD161J-103	RESISTOR
Q102		2SD636R,S	TRANSISTOR	R45		QRD161J-103	RESISTOR
Q103		2SD636R,S	TRANSISTOR	R46		QRD161J-103	RESISTOR
Q104		2SD636R,S	TRANSISTOR	R47		QRD161J-103	RESISTOR
				R48		QRD161J-472	RESISTOR
				R49		QRD161J-105	RESISTOR
D1		HZS4.3EB2	ZENER DIODE	R50		QRD161J-103	RESISTOR
D2		1SS133	DIODE	R51		QRD161J-103	RESISTOR
D3		1SS133	DIODE	R52		QRD161J-103	RESISTOR
D4		1SS133	DIODE	R53		QRD161J-103	RESISTOR
D5		1SS133	DIODE	R54		QRD161J-103	RESISTOR
D6		HZS7.5EB2	ZENER DIODE	R55		QRD161J-103	RESISTOR
D7		1SS133	DIODE	R56		QRD161J-102	RESISTOR
D8		1SS133	DIODE	R57		QRD161J-103	RESISTOR
D9		V03C	DIODE	R58		QRD161J-103	RESISTOR
D10		1SS133	DIODE	R59		QRD161J-103	RESISTOR
				R60		QRD161J-103	RESISTOR
D11		1SS133	DIODE	R61		QRD161J-103	RESISTOR
D12		1SS133	DIODE	R62		QRD161J-0R0	RESISTOR
D13		1SS133	DIODE	R63		QRD161J-472	RESISTOR
D14		1SS133	DIODE	R64		QRD161J-472	RESISTOR
D15		1SS133	DIODE	R65		QRD161J-682	RESISTOR
D101		1SS133	DIODE	R66		QRD161J-103	RESISTOR
D102		1SS133	DIODE	R67		QRD161J-472	RESISTOR
D103		1SS133	DIODE	R69		QRD161J-472	RESISTOR
D104		1SS133	DIODE	R70		QRD161J-104	RESISTOR
R1		QRD161J-152	RESISTOR	R71		QRD161J-472	RESISTOR
R2		QRD161J-223	RESISTOR	R72		QRD161J-104	RESISTOR
R3		QRD161J-331	RESISTOR	R73		QRD161J-472	RESISTOR
R4		QRD161J-822	RESISTOR	R74		QRD161J-104	RESISTOR
R5		QRD161J-103	RESISTOR	R75		QRD161J-102	RESISTOR
R6		QRD161J-472	RESISTOR	R76		QRD161J-473	RESISTOR
R7		QRD161J-472	RESISTOR	R77		QRD161J-103	RESISTOR
R8		QRD161J-102	RESISTOR	R78		QRD161J-104	RESISTOR
R9		QRD161J-472	RESISTOR	R79		QRD161J-562	RESISTOR
R10		QRD161J-472	RESISTOR	R80		QRD161J-472	RESISTOR
R11		QRD161J-472	RESISTOR	R81		QRD161J-472	RESISTOR
R12		QRD161J-472	RESISTOR	R85		QRD161J-223	RESISTOR
R13		QRD161J-472	RESISTOR	R87		QRD161J-272	RESISTOR
R14		QRD161J-124	RESISTOR				
R15		QRD161J-124	RESISTOR	R107		QRD161J-222	RESISTOR
R16		QRD161J-103	RESISTOR	R108		QRD161J-222	RESISTOR
R17		QRD161J-103	RESISTOR	R109		QRD161J-124	RESISTOR
R18		QRD161J-333	RESISTOR	R110		QRD161J-223	RESISTOR
R19		QRD161J-103	RESISTOR				
R20		QRD161J-103	RESISTOR	R111		QRD161J-223	RESISTOR
R21		QRD161J-103	RESISTOR	R112		QRD161J-103	RESISTOR
R22		QRD161J-103	RESISTOR	R113		QRD161J-333	RESISTOR
R23		QRD161J-103	RESISTOR	R114		QRD161J-333	RESISTOR
R24		QRD161J-103	RESISTOR	R115		QRD161J-334	RESISTOR
R25		QRD161J-472	RESISTOR	R116		QRD161J-124	RESISTOR
R26		QRD161J-472	RESISTOR	R117		QRD161J-0R0	RESISTOR
R27		QRD161J-472	RESISTOR				
R28		QRD161J-472	RESISTOR	RA1		QRB047J-472	RESISTOR ARRAY
R29		QRD161J-472	RESISTOR	OR		QRB049J-472	RESISTOR ARRAY
R30		QRD161J-472	RESISTOR	RA2		QRB047J-103	RESISTOR ARRAY
				OR		QRB049J-103	RESISTOR ARRAY
R31		QRD161J-472	RESISTOR	RA3		QRB067J-103	RESISTOR ARRAY
R32		QRD161J-102	RESISTOR				
R33		QRD161J-102	RESISTOR	B1		QRD161J-0R0	RESISTOR
R34		QRD161J-103	RESISTOR	B2		QRD161J-0R0	RESISTOR

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#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	B3	QRD161J-0R0	RESISTOR
	B6	QRD161J-0R0	RESISTOR
	B8	QRD161J-0R0	RESISTOR
	B9	QRD161J-0R0	RESISTOR
	B10	QRD161J-0R0	RESISTOR
	C1	QETC1EM-335	E CAPACITOR
	C2	QCF31HP-223	CAPACITOR
	C3	QCF31HP-223	CAPACITOR
	C4	QCF31HP-473	CAPACITOR
	C5	QCF31HP-223	CAPACITOR
	C6	QCF31HP-223	CAPACITOR
	C7	QCS31HJ-101	CAPACITOR
	C8	QCS31HJ-101	CAPACITOR
	C9	QCS31HJ-101	CAPACITOR
	C10	QCS31HJ-101	CAPACITOR
	C11	QCF31HP-473	CAPACITOR
	C12	QETC1EM-475	E CAPACITOR
	C13	QCF31HP-473	CAPACITOR
	C14	QCS31HJ-680	CAPACITOR
	C15	QCS31HJ-680	CAPACITOR
△	C16	QER61CM-107	E CAPACITOR
△	C17	QCF31HP-222	E CAPACITOR
	C18	QCF31HP-473	CAPACITOR
	C19	QCS31HJ-680	CAPACITOR
	C20	QCS31HJ-680	CAPACITOR
	C21	QCF31HP-103	CAPACITOR
	C22	QCS31HJ-680	CAPACITOR
	C23	QCS31HJ-680	CAPACITOR
△	C24	QER61EM-335	E CAPACITOR
△	C25	QER61CM-226	E CAPACITOR
	C104	QCF31HP-103	CAPACITOR
	C105	QER61CM-226	E CAPACITOR
	C106	QER61CM-226	E CAPACITOR
	C107	QCF31HP-103	CAPACITOR
	C110	QER61CM-106	E CAPACITOR
	L1	PU59152-100J	COIL
	L102	PU59152-101J	COIL
△	CF1	PU60030	RESONATOR
△	K1	QRD167J-0R0	FERRITE BEADS
△	K2	PGZ00354	FERRITE BEADS
△	K3	PGZ00354	FERRITE BEADS
△	K4	PGZ00354	FERRITE BEADS
△	K5	PGZ00354	FERRITE BEADS
△	K6	PGZ00354	FERRITE BEADS
△	K7	PGZ00354	FERRITE BEADS
△	TH1	PU52108-100	POSITIVE THERMISTOR
△	TH2	PU52108-100	POSITIVE THERMISTOR
	TH101	ERT-D2FHL103S	THERMISTOR
	J1	QWE211-11A1A1	VNIYL WIRE
	J2	QWE212-11A1A1	V. WIRW
	J3	QWE213-11A1A1	WIRE
	J4	QWE214-10A1A1	WIRE
	SKT1	PGZ01428-064	IC SOCKET, (FOR IC101)
	WR1	PW30112-10AF6AH	PARALLEL WIRE, (CN18)
	TP1	PU54983	TEST PIN
	CN1	PU58844-2	CONNECTOR
	CN2	PU58930-16	CONNECTOR
	CN3	PU58928-20	CONNECTOR
	CN4	PU58928-20	CONNECTOR
	CN5	PU58844-3	CONNECTOR

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	CN6	PU58844-3R	CONNECTOR
	CN7	PU58930-20	CONNECTOR
	CN8	PU58844-2R	CONNECTOR
	CN9	PU58844-2	CONNECTOR
	CN10	PU58844-8Y	CONNECTOR
	CN11	PU58844-8	CONNECTOR
	CN12	PU58844-3Y	CONNECTOR
	CN13	PU58844-10	CONNECTOR
	CN14	PU58844-2Y	CONNECTOR
	CN15	PU58844-4	CONNECTOR
	CN16	PU58844-5	CONNECTOR
	CN17	PU58844-6Y	CONNECTOR
	CN18	PU59934-17	WIRE HOLDER
	CN19	PU58844-8	CONNECTOR
	CN20	PU58844-5Y	CONNECTOR
	CN21	PU58844-5R	CONNECTOR
	CN23	PU58844-6	CONNECTOR
	CN26	PU58844-14	CONNECTOR
	CN27	PU58844-6R	CONNECTOR
	CN28	PU58844-7	CONNECTOR
	CN29	PU58844-2R	CONNECTOR
	CN30	PU58844-2	CONNECTOR
	CN31	PU58844-2Y	CONNECTOR
	CN32	PU58844-9	CONNECTOR
	CN35	PU58844-2	CONNECTOR
	CN36	PU58844-6	CONNECTOR
	CN37	PU58844-2	CONNECTOR

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 \* 11. VIDEO SUB BOARD ASSY<10> \*  
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PWBA	PRK30034B	VIDEO SUB BOARD ASSY
IC1	BU3791	IC
Q1	DTC144ES	TRANSISTOR
Q2	DTC124ES	TRANSISTOR
Q3	DTC144WS	TRANSISTOR
D1	1SS133	DIODE
D2	1SS133	DIODE
R1	QRD161J-103	RESISTOR
R2	QRD161J-104	RESISTOR
R3	QRD161J-104	RESISTOR
R4	QRD161J-104	RESISTOR
R5	QRD161J-104	RESISTOR
R6	QRD161J-822	RESISTOR
R7	QRD161J-104	RESISTOR
R8	QRD161J-103	RESISTOR
R9	QRD161J-563	RESISTOR
R10	QRD161J-472	RESISTOR
C1	QCB11HJ-102	CAPACITOR
C2	QCC11CK-104	CAPACITOR
C3	QCB11HJ-102	CAPACITOR
C4	QCB11HJ-121	CAPACITOR
C5	QEK61AM-336	E CAPACITOR
C6	QFN31HJ-103	M CAPACITOR
J1	QWE251-04A2A2	WIRE
CN1	PU58844-7	CONNECTOR
CN2	PU58844-7R	CONNECTOR
CN3	PU58844-5	CONNECTOR
CN4	PU58844-3	CONNECTOR

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
	CN5	PU58844-2	CONNECTOR
*****			
	PWB	PB40029	AUDIO/CONTROL HEAD BOARD
	CN1	PU58844-103	CONNECTOR
	CN2	PU58844-104B	CONNECTOR
*****			
	PWB	PDM3017	BOARD (UPPER DRUM)
*****			
	PWBA	PRK10101A	PRE/REC BOARD ASSY
	IC1	TA8609P	IC
	IC2	TA8733F	IC
	IC3	MN4052BS	IC
	IC4	AN6392	IC
	IC5	TC4S81F	IC
	IC6	TC4S71F	IC
	Q1	2SC2412K	TRANSISTOR
	Q2	2SC2412K	TRANSISTOR
	Q3	2SC2412K	TRANSISTOR
	Q4	2SC2412K	TRANSISTOR
	Q5	2SA1036K(R)	TRANSISTOR
	Q6	DTC124EK	TRANSISTOR
	Q7	2SA1036K(R)	TRANSISTOR
	Q8	2SC2412K	TRANSISTOR
	Q9	2SC2412K	TRANSISTOR
	Q10	2SC2412K	TRANSISTOR
	Q11	2SA1037K	TRANSISTOR
	Q12	DTC144EK	TRANSISTOR
	Q13	2SA1037K	TRANSISTOR
	Q14	DTC144EK	TRANSISTOR
	Q15	2SA1037K	TRANSISTOR
	Q16	DTC144EK	TRANSISTOR
	Q17	DTC144WK	TRANSISTOR
	Q18	DTC124EK	TRANSISTOR
	Q19	DTC124EK	TRANSISTOR
	Q101	DTA124EK	TRANSISTOR
	Q102	DTA124EK	TRANSISTOR
	Q103	DTC124EK	TRANSISTOR
	Q104	2SC2412K	TRANSISTOR
	Q105	2SA1037K	TRANSISTOR
	Q106	2SC2412K	TRANSISTOR
	Q107	2SC2412K	TRANSISTOR
	Q108	2SA1037K	TRANSISTOR
	Q109	2SC2412K	TRANSISTOR
	Q110	2SA1037K	TRANSISTOR

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
	Q111	DTC124EK	TRANSISTOR
	Q112	2SC2412K	TRANSISTOR
	Q113	2SC2412K	TRANSISTOR
	Q114	2SC2412K	TRANSISTOR
	Q115	2SC2412K	TRANSISTOR
	Q116	2SC2412K	TRANSISTOR
	Q117	2SC2412K	TRANSISTOR
	Q118	2SC2412K	TRANSISTOR
	Q119	2SA1037K	TRANSISTOR
	D1	DAN202K	DIODE
	D2	DAN202K	DIODE
	D3	DAN202K	DIODE
	D4	DAN202K	DIODE
	D5	DAN202K	DIODE
	D6	DAN202K	DIODE
	D7	DAN202K	DIODE
	D101	DAN202K	DIODE
	D102	DAP202K	DIODE
	D103	DAN202K	DIODE
	D104	MA157	DIODE
	D105	MA157	DIODE
	R1	QRSA08J-100YN	RESISTOR
	R2	QRSA08J-272YN	RESISTOR
	R3	QRSA08J-100YN	RESISTOR
	R4	QRSA08J-272YN	RESISTOR
	R5	QRSA08J-103YN	RESISTOR
	R6	QRSA08J-100YN	RESISTOR
	R7	QRSA08J-272YN	RESISTOR
	R8	QRSA08J-100YN	RESISTOR
	R9	QRSA08J-272YN	RESISTOR
	R10	QRSA08J-103YN	RESISTOR
	R11	QRSA08J-102YN	RESISTOR
	R12	QVPC402-152	V RESISTOR,
	R13	QVPC402-152	V RESISTOR,
	R14	QRSA08J-103YN	RESISTOR
	R15	QVPC402-152	V RESISTOR,
	R16	QRSA08J-102YN	RESISTOR
	R17	QRSA08J-821YN	RESISTOR
	R18	QVPC402-152	V RESISTOR,
	R19	QRD161J-333	RESISTOR
	R20	QRSA08J-101YN	RESISTOR
	R21	QRSA08J-393YN	RESISTOR
	R22	QRSA08J-222YN	RESISTOR
	R23	QRSA08J-103YN	RESISTOR
	R24	QRSA08J-103YN	RESISTOR
	R25	QRSA08J-393YN	RESISTOR
	R26	QRD161J-222	RESISTOR
	△ R27	PU52108-150	POSITIVE THERMISTOR
	R28	QRSA08J-221YN	RESISTOR
	R29	QRSA08J-102YN	RESISTOR
	R30	QRSA08J-122YN	RESISTOR
	R31	QRSA08J-221YN	RESISTOR
	R32	QRSA08J-102YN	RESISTOR
	R33	QRSA08J-122YN	RESISTOR
	R34	QRSA08J-103YN	RESISTOR
	R35	QRSA08J-122YN	RESISTOR
	R36	QRSA08J-103YN	RESISTOR
	R37	QRSA08J-122YN	RESISTOR
	R38	QRSA08J-103YN	RESISTOR
	R39	QRSA08J-122YN	RESISTOR
	R40	QRSA08J-393YN	RESISTOR
	R41	QRSA08J-821YN	RESISTOR
	R42	QRSA08J-393YN	RESISTOR
	R43	QRSA08J-681YN	RESISTOR
	R44	QRSA08J-393YN	RESISTOR
	R45	QRSA08J-681YN	RESISTOR
	R46	QRSA08J-623YN	RESISTOR

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#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
R47		QRSA08J-821YN	RESISTOR
R48		QRSA08J-680YN	RESISTOR
R49		QRSA08J-102YN	RESISTOR
R50		QRSA08J-222YN	RESISTOR
R51		QRSA08J-561YN	RESISTOR
R52		QRSA08J-123YN	RESISTOR
R53		QRSA08J-680YN	RESISTOR
R54		QRSA08J-472YN	RESISTOR
R55		QRSA08J-102YN	RESISTOR
R56		QRSA08J-103YN	RESISTOR
R57		QRSA08J-103YN	RESISTOR
R58		QRSA08J-823YN	RESISTOR
R59		QRSA08J-681YN	RESISTOR
R60		QRSA08J-103YN	RESISTOR
R61		QRSA08J-561YN	RESISTOR
R101		QRSA08J-223YN	RESISTOR
R102		QRSA08J-273YN	RESISTOR
R103		QRSA08J-561YN	RESISTOR
R104		QRSA08J-102YN	RESISTOR
R105		QRSA08J-102YN	RESISTOR
R106		QRSA08J-391YN	RESISTOR
R107		QVPC603-152	V RESISTOR,
R108		QVPC603-222	V RESISTOR,
R109		QRSA08J-561YN	RESISTOR
R110		QRSA08J-152YN	RESISTOR
R111		QRSA08J-561YN	RESISTOR
R112		QRSA08J-472YN	RESISTOR
R113		QRSA08J-561YN	RESISTOR
R114		QRSA08J-152YN	RESISTOR
R115		QRSA08J-471YN	RESISTOR
R116		QRSA08J-102YN	RESISTOR
R117		QRSA08J-102YN	RESISTOR
R118		QRSA08J-122YN	RESISTOR
R119		QRSA08J-102YN	RESISTOR
R120		QRSA08J-102YN	RESISTOR
R121		QRSA08J-681YN	RESISTOR
R122		QRSA08J-561YN	RESISTOR
R123		QRSA08J-122YN	RESISTOR
R124		QRSA08J-821YN	RESISTOR
R125		QRSA08J-102YN	RESISTOR
R126		QRSA08J-122YN	RESISTOR
R127		QRSA08J-222YN	RESISTOR
R128		QRSA08J-681YN	RESISTOR
R129		QRSA08J-101YN	RESISTOR
R130		QVPC603-682	V RESISTOR,
R131		QVPC603-103	V RESISTOR,
R132		QRSA08J-103YN	RESISTOR
R133		QRSA08J-223YN	RESISTOR
R134		QRSA08J-102YN	RESISTOR
R135		QRSA08J-102YN	RESISTOR
R136		QRSA08J-102YN	RESISTOR
R137		QRSA08J-682YN	RESISTOR
R138		QRSA08J-361YN	RESISTOR
R139		QRSA08J-392YN	RESISTOR
R140		QRSA08J-102YN	RESISTOR
R141		QRSA08J-561YN	RESISTOR
R142		QRSA08J-152YN	RESISTOR
R143		QRSA08J-332YN	RESISTOR
R144		QRSA08J-472YN	RESISTOR
R145		QRSA08J-184YN	RESISTOR
R146		QRSA08J-682YN	RESISTOR
R147		QRSA08J-222YN	RESISTOR
R148		QRSA08J-184YN	RESISTOR
R149		QRSA08J-102YN	RESISTOR
B101		QRSA08J-OR0Y	RESISTOR, X22

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
C1		QCFA1HZ-103	CAPACITOR
C2		QCFA1HZ-103	CAPACITOR
C3		QCFA1HZ-103	CAPACITOR
C4		QCFA1HZ-103	CAPACITOR
C5		QCVB1CN-103	CAPACITOR
C6		QCFA1HZ-103	CAPACITOR
C7		QCFA1HZ-103	CAPACITOR
C8		QCFA1HZ-103	CAPACITOR
C13		QCFA1HZ-103	CAPACITOR
C14		QCFA1HZ-103	CAPACITOR
C15		QCFA1HZ-103	CAPACITOR
C16		QCFA1HZ-103	CAPACITOR
C17		QER51HM-105	E CAPACITOR
C18		QCFA1HZ-103	CAPACITOR
C19		QER51HM-105	E CAPACITOR
C20		QCSA1HJ-101	CAPACITOR
C21		QER51HM-105	E CAPACITOR
C22		QCFA1HZ-103	CAPACITOR
C23		QCFA1HZ-103	CAPACITOR
C24		QER50JM-476	E CAPACITOR
C25		QCFA1HZ-103	CAPACITOR
C26		QCFA1HZ-103	CAPACITOR
C27		QER51HM-105	E CAPACITOR
C28		QCFA1HZ-103	CAPACITOR
C29		QER50JM-476	E CAPACITOR
C30		QER51HM-104	E CAPACITOR
C31		QCFA1HZ-103	CAPACITOR
C32		QCFA1HZ-103	CAPACITOR
C33		QCFA1HZ-103	CAPACITOR
C34		QCSA1HJ-821	CAPACITOR
C35		QRSA08J-OR0Y	RESISTOR
C36		QCSA1HJ-271	CAPACITOR
C37		QCSA1HJ-121	CAPACITOR
C38		QCSA1HJ-121	CAPACITOR
C39		QCSA1HJ-331	CAPACITOR
C40		QER50JM-476	E CAPACITOR
C41		QEE81EM-105	TANTAL CAPACITOR
C42		QEE81EM-105	TANTAL CAPACITOR
C43		QEE81EM-105	TANTAL CAPACITOR
C44		QCFA1HZ-103	CAPACITOR
C45		QCFA1HZ-103	CAPACITOR
C46		QCFA1HZ-103	CAPACITOR
C47		QCFA1HZ-103	CAPACITOR
C48		QER50JM-476	E CAPACITOR
C49		QER51CM-476	E CAPACITOR
C50		QCFA1HZ-103	CAPACITOR
C51		QFN41HJ-273	M CAPACITOR
C52		QFN41HJ-103	M CAPACITOR
C53		QER51HM-105	E CAPACITOR
C54		QCSA1HJ-470	CAPACITOR
C55		QCFA1HZ-103	CAPACITOR
C56		QCFA1HZ-103	CAPACITOR
C57		QCSA1HJ-7R0	CAPACITOR
C58		QCFA1HZ-103	CAPACITOR
C59		QCSA1HJ-101	CAPACITOR
C60		QCFA1EZ-104	CAPACITOR
C61		PECA0779-200X	CHIP TRIM CAP,
C62		PECA0779-200X	CHIP TRIM CAP,
C63		PECA0779-200X	CHIP TRIM CAP,
C64		PECA0779-200X	CHIP TRIM CAP,
C101		QCFA1HZ-103	CAPACITOR
C102		QCSA1HJ-820	CAPACITOR
C103		QCSA1HJ-180	CAPACITOR
C104		QCFA1HZ-103	CAPACITOR
C105		QCSA1HJ-390	CAPACITOR
C106		QCSA1HJ-180	CAPACITOR
C107		QCSA1HJ-390	CAPACITOR



#	REF NO.	PART NO.	PART NAME, DESCRIPTION
	C108	QCSA1HJ-120	CAPACITOR
	C109	QCSA1HJ-100	CAPACITOR
	C110	QER50JM-476	E CAPACITOR
	C111	QCFA1HZ-103	CAPACITOR
	C112	QCFA1HZ-103	CAPACITOR
	C113	QCSA1HJ-100	CAPACITOR
	C114	QCSA1HJ-360	CAPACITOR
	C115	QCSA1HJ-220	CAPACITOR
	C117	QCSA1HJ-180	CAPACITOR
	C118	QCFA1HZ-103	CAPACITOR
	C119	QCSA1HJ-470	CAPACITOR
	C120	QCFA1HZ-103	CAPACITOR
	C121	QCFA1EZ-104	CAPACITOR
	C122	QCFA1HZ-103	CAPACITOR
	C123	QCFA1HZ-103	CAPACITOR
	C124	QCSA1HJ-120	CAPACITOR
	C125	QCSA1HJ-7R0	CAPACITOR
	C126	QCSA1HJ-221	CAPACITOR
	C127	QCSA1HJ-681	CAPACITOR
	C128	QCFA1HZ-103	CAPACITOR
	C129	QER51HM-105	E CAPACITOR
	C130	QER51EM-475	E CAPACITOR
	C131	QCFA1HZ-103	CAPACITOR
	C132	QER50JM-476	E CAPACITOR
	L1	PU59152-2R2K	COIL
	L2	PU59152-100J	COIL
	L3	PU59152-150J	COIL
	L4	PU48530-101K	COIL
	L5	PU48530-101K	COIL
	L9	PU59152-330J	COIL
	L10	PU59152-181J	COIL
	L11	PU59152-4R7K	COIL
	L12	PU59152-270J	COIL
	L13	PU48530-101K	COIL
	L14	PU48530-101K	COIL
	L15	PU59152-120J	COIL
	L20	PU59152-470J	COIL
	L21	PU59152-470J	COIL
	L101	PU59152-560J	COIL
	L102	PU59152-150J	COIL
	L103	PU59152-390J	COIL
	L104	PU59152-221J	COIL
	L105	PU59152-100J	COIL
	L106	PU48530-101K	COIL
	L107	PU59152-820J	COIL
	L108	PU59152-390J	COIL
	L109	PU59152-220J	COIL
	L110	PU59152-220J	COIL
	L111	PU48530-101K	COIL
	L112	PU59152-121J	COIL
	L113	PU59152-8R2J	COIL
	L114	PU59152-330J	COIL
	BKT1	PQ42955	PWB BKT
	ETH1	PQ40433-2	EARTH LUG
	SCW1	DPSP2606Z	SCREW, X2
	SCW2	DPSP2606Z	SCREW
	SLD1	PU36485	SHIELD PLATE
	SLD2	PU36486	SHIELD CASE
	SLD3	PRS40022	SHIELD
	SPC1	PU59210-001	W. LOCKING SPACE, X5
		WBS2600Z	TOOTH LOCK WASHER
	TP1	PU56008	TEST-PIN, X8(TP1-7,GND)

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
	CN1	PU56258-10	CONNECTOR
	CN2	PU58844-3	CONNECTOR
	CN3	PU58844-3R	CONNECTOR
	CN4	PU58844-5R	CONNECTOR
	CN5	PU58844-5Y	CONNECTOR
	CN6	PU58844-4	CONNECTOR
	CN7	PU58844-5	CONNECTOR
*****			
*****			
* 15. DECK TERMINAL BOARD ASSY<51> *			
*****			
	PWBA	PB20013C-05	DECK TERMINAL BOARD ASSY
	PWBA1	PB20013C1	DECK TERMINAL BOARD ASSY
	R1	QRD181J-151	RESISTOR
	R3	QRD181J-331	RESISTOR
	PS1	PU60271	PHOTO INTERRUPTER
	CN1	PEMC0722-017	WIRE TRAP
		OR PEMC0753-017	WIRE TRAP
*****			
*****			
* 16. RELAY BOARD ASSY<52> *			
*****			
	PWBA2	PB20013A2-01	RELAY BOARD ASSY
	△ LC1	PU59736-223	N FILTER
	△ LC2	PU59736-223	N FILTER
	WR1	PW30113-G0ABZ62	PARALLEL WIRE
		OR PW30118-G0ABZ62	PARALLEL WIRE
*****			
*****			
* 17. REC SAFETY BOARD ASSY<53> *			
*****			
	PWBA3	PB20013A3	REC SAFETY BOARD ASSY
	S1	PU58644-1-3	REC SAFETY SWITCH
*****			
*****			
* 18. END SENSOR BOARD ASSY<54> *			
*****			
	PWBA4	PB20013A4	END SENSOR BOARD ASSY
	Q1	PN268R-NC	PHOTO TRANSISTOR
	HD1	PQ31047-1-4	END SENSOR HOLDER
	CN1	PU59945-102	WIRE SOCKET
*****			

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#	REF NO.	PART NO.	PART NAME, DESCRIPTION
*****			
* 19. CASSETTE HOUSING BOARD ASSY<56> *			
*****			
PWBA	PB30043		CASSETTE HOUSING BOARD
PT1	PN268R-NC		PHOTO TRANSISTOR
R1	QRD162J-471		RESISTOR
PS1	PU58879		PHOTO INTERRUPTER
CN1	PU58844-106		CONNECTOR
*****			
*****			
* 20. D-SUB C. BOARD ASSY<61> BR-S925E *			
*****			
PWBA	PRK30047E		D-SUB C. BOARD ASSY, BR-S925E
JP1	QRSA08J-OR0Y		RESISTOR
JP2	QRSA08J-OR0Y		RESISTOR
JP3	QRSA08J-OR0Y		RESISTOR
JP4	QRSA08J-OR0Y		RESISTOR
JP5	QRSA08J-OR0Y		WIRE
JP6	QRSA08J-OR0Y		WIRE
VA1	PGZ00753		VARISTOR
VA2	PGZ00753		VARISTOR
VA3	PGZ00753		VARISTOR
VA4	PGZ00753		VARISTOR
VA5	PGZ00753		VARISTOR
CN1	PU58844-9		CONNECTOR
*****			
*****			
* 21. DIGITAL 1 BOARD ASSY<62> BR-S925E *			
*****			
PWBA	PRK10099A-01		DIGITAL1 BOARD ASSY, BR-S925E
IC3	TC74HC74AF	IC	
IC4	CXD1176Q	IC	
IC5	LA7213	IC	
IC6	TC4528BF	IC	
IC7	TC4066BF	IC	
IC8	NJM4560M	IC	
IC9	UPC319G2	IC	
△ IC10	TC74HCU04AF	IC	
IC13	TC74HC00AF	IC	
IC16	TC74HC00AF	IC	
IC21	TC74HC4538AF	IC	
IC22	TC74HC4538AF	IC	
IC23	TC74HC04AF	IC	
IC24	JCL0005	IC	
IC25	TC74HC164AF	IC	
IC102	M51271FP	IC	
IC103	TC74HC4053AF	IC	
IC105	CXD1176Q	IC	
IC106	TC74HC574AF	IC	

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
*****			
IC107	CXK1206AM	IC	
	OR MB81C1501PF	IC	
IC108	CXK1206AM	IC	
	OR MB81C1501PF	IC	
IC111	CXK1206AM	IC	
	OR MB81C1501PF	IC	
IC113	TC74HC574AF	IC	
IC115	JCL0013	IC	
IC116	M50255P	IC	
IC117	M51957BL	IC	
IC202	UPC662GH	IC	
IC203	M51272FP	IC	
△ IC206	TC74HCU04AF	IC	
IC210	TC74HC132AF	IC	
△ IC211	TC74HCU04AF	IC	
IC212	CXD1217M	IC	
IC213	TC74HC74AF	IC	
IC214	TC74HC164AF	IC	
IC215	TC74HC4066AF	IC	
IC301	LA7016	IC	
IC302	LA7016	IC	
IC303	LA7016	IC	
Q1	2SA1022(C)	TRANSISTOR	
Q2	2SC2778(C)	TRANSISTOR	
Q4	2SA1022(C)	TRANSISTOR	
Q5	2SC2778(C)	TRANSISTOR	
Q6	2SC2778(C)	TRANSISTOR	
Q7	2SA1022(C)	TRANSISTOR	
Q8	2SC2778(C)	TRANSISTOR	
Q9	2SC2778(C)	TRANSISTOR	
Q101	2SA1022(C)	TRANSISTOR	
Q104	2SA1022(C)	TRANSISTOR	
Q105	2SA1022(C)	TRANSISTOR	
Q108	2SC2778(C)	TRANSISTOR	
Q109	2SA1022(C)	TRANSISTOR	
Q110	2SC2778(C)	TRANSISTOR	
Q201	2SA1022(C)	TRANSISTOR	
Q202	2SC2778(C)	TRANSISTOR	
Q203	2SC2778(C)	TRANSISTOR	
Q204	2SC2778(C)	TRANSISTOR	
Q205	2SC2778(C)	TRANSISTOR	
Q206	2SC2778(C)	TRANSISTOR	
Q207	2SC2778(C)	TRANSISTOR	
Q208	2SC2778(C)	TRANSISTOR	
Q209	DTC144EK	TRANSISTOR	
Q210	2SC2778(C)	TRANSISTOR	
Q211	2SC2778(C)	TRANSISTOR	
Q212	2SC2778(C)	TRANSISTOR	
Q213	2SA1022(C)	TRANSISTOR	
Q214	2SA1022(C)	TRANSISTOR	
Q215	DTC144EK	TRANSISTOR	
Q216	2SC2778(C)	TRANSISTOR	
Q217	2SC2778(C)	TRANSISTOR	
Q218	DTC144EK	TRANSISTOR	
Q301	2SC2778(C)	TRANSISTOR	
Q302	2SC2778(C)	TRANSISTOR	
Q303	2SC2778(C)	TRANSISTOR	
D2	1SS133	DIODE	
D101	1SS133	DIODE	
D102	1SS133	DIODE	
R1	NRSA63J-333N	RESISTOR	
R2	NRSA63J-333N	RESISTOR	

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
R3		NRSA63J-821N	RESISTOR
R4		NRSA63J-331N	RESISTOR
R5		NRSA63J-181N	RESISTOR
R6		NRSA63J-102N	RESISTOR
R7		NRSA63J-331N	RESISTOR
R8		NRSA63J-473N	RESISTOR
R9		NRSA63J-333N	RESISTOR
R10		NRSA63J-222N	RESISTOR
R11		NRSA63J-122N	RESISTOR
R12		NRSA63J-102N	RESISTOR
R13		NRSA63J-102N	RESISTOR
R20		NRSA63J-124N	RESISTOR
R23		NRSA63J-104N	RESISTOR
R26		NRSA63J-183N	RESISTOR
R27		NRSA63J-183N	RESISTOR
R28		NRSA63J-223N	RESISTOR
R29		NRSA63J-473N	RESISTOR
R30		NRSA63J-680N	RESISTOR
R31		NRSA63J-222N	RESISTOR
R32		NRSA63J-102N	RESISTOR
R33		NRSA63J-102N	RESISTOR
R34		QVZ3513-472	V RESISTOR, SYNC ADJ
R35		NRSA63J-680N	RESISTOR
R36		NRSA63J-102N	RESISTOR
R51		NRSA63J-473N	RESISTOR
R52		NRSA63J-183N	RESISTOR
R53		NRSA63J-222N	RESISTOR
R54		NRSA63J-102N	RESISTOR
R55		NRSA63J-152N	RESISTOR
R56		NRSA63J-101N	RESISTOR
R57		NRSA63J-122N	RESISTOR
R61		NRSA63J-680N	RESISTOR
R62		NRSA63J-105N	RESISTOR
R63		NRSA63J-472N	RESISTOR
R64		NRSA63J-272N	RESISTOR
R65		QVZ3513-331	V RESISTOR,
R66		NRSA63J-152N	RESISTOR
R67		NRSA63J-103N	RESISTOR
R69		NRSA63J-393N	RESISTOR
R70		NRSA63J-102N	RESISTOR
R71		NRSA63J-822N	RESISTOR
R72		NRSA63J-153N	RESISTOR
R101		NRSA63J-223N	RESISTOR
R102		NRSA63J-103N	RESISTOR
R103		NRSA63J-222N	RESISTOR
R110		NRSA63J-102N	RESISTOR
R111		NRSA63J-102N	RESISTOR
R112		NRSA63J-562N	RESISTOR
R113		NRSA63J-153N	RESISTOR
R114		NRSA63J-333N	RESISTOR
R115		NRSA63J-153N	RESISTOR
R116		NRSA63J-105N	RESISTOR
R117		NRSA63J-152N	RESISTOR
R119		NRSA63J-273N	RESISTOR
R120		QVZ3513-103	V RESISTOR, TINT
R121		NRSA63J-223N	RESISTOR
R122		NRSA63J-101N	RESISTOR
R123		NRSA63J-221N	RESISTOR
R124		NRSA63J-224N	RESISTOR
R125		NRSA63J-222N	RESISTOR
R126		NRSA63J-102N	RESISTOR
R127		NRSA63J-102N	RESISTOR
R128		NRSA63J-102N	RESISTOR
R129		NRSA63J-102N	RESISTOR
R130		NRSA63J-562N	RESISTOR

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
R131		NRSA63J-471N	RESISTOR
R132		NRSA63J-183N	RESISTOR
R133		NRSA63J-473N	RESISTOR
R134		NRSA63J-183N	RESISTOR
R135		NRSA63J-222N	RESISTOR
R136		NRSA63J-122N	RESISTOR
R137		NRSA63J-122N	RESISTOR
R138		NRSA63J-101N	RESISTOR
R139		NRSA63J-122N	RESISTOR
R140		NRSA63J-562N	RESISTOR
R141		NRSA63J-474N	RESISTOR
R142		NRSA63J-102N	RESISTOR
R143		NRSA63J-562N	RESISTOR
R144		NRSA63J-272N	RESISTOR
R145		NRSA63J-103N	RESISTOR
R153		NRSA63J-124N	RESISTOR
R154		NRSA63J-222N	RESISTOR
R155		NRSA63J-222N	RESISTOR
R159		NRSA63J-472N	RESISTOR
R160		NRSA63J-472N	RESISTOR
R161		NRSA63J-472N	RESISTOR
R162		NRSA63J-472N	RESISTOR
R163		NRSA63J-222N	RESISTOR
R164		NRSA63J-222N	RESISTOR
R165		NRSA63J-222N	RESISTOR
R166		NRSA63J-222N	RESISTOR
R167		NRSA63J-222N	RESISTOR
R168		NRSA63J-222N	RESISTOR
R169		NRSA63J-222N	RESISTOR
R170		NRSA63J-222N	RESISTOR
R171		NRSA63J-222N	RESISTOR
R172		NRSA63J-222N	RESISTOR
R173		NRSA63J-222N	RESISTOR
R174		NRSA63J-222N	RESISTOR
R175		NRSA63J-222N	RESISTOR
R176		NRSA63J-222N	RESISTOR
R177		NRSA63J-222N	RESISTOR
R178		NRSA63J-222N	RESISTOR
R201		NRSA63J-680N	RESISTOR
R202		NRSA63J-102N	RESISTOR
R203		NRSA63J-102N	RESISTOR
R204		NRSA63J-102N	RESISTOR
R205		NRSA63J-391N	RESISTOR
R206		QVZ3513-102	V RESISTOR, Y LEVEL
R207		NRSA63J-272N	RESISTOR
R208		NRSA63J-563N	RESISTOR
R209		NRSA63J-563N	RESISTOR
R210		NRSA63J-680N	RESISTOR
R211		QVZ3513-223	V RESISTOR, SYNC LEVEL
R212		NRSA63J-273N	RESISTOR
R213		NRSA63J-472N	RESISTOR
R214		NRSA63J-822N	RESISTOR
R215		NRSA63J-563N	RESISTOR
R216		NRSA63J-472N	RESISTOR
R217		NRSA63J-223N	RESISTOR
R218		NRSA63J-121N	RESISTOR
R219		NRSA63J-123N	RESISTOR
R220		NRSA63J-121N	RESISTOR
R221		NRSA63J-222N	RESISTOR
R222		NRSA63J-121N	RESISTOR
R223		NRSA63J-101N	RESISTOR
R224		NRSA63J-102N	RESISTOR
R225		NRSA63J-102N	RESISTOR
R226		QVZ3513-682	V RESISTOR, VODEO LEVEL
R227		NRSA63J-272N	RESISTOR
R228		NRSA63J-822N	RESISTOR

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R229	NRSA63J-152N	RESISTOR
	R230	NRSA63J-123N	RESISTOR
	R231	NRSA63J-472N	RESISTOR
	R232	NRSA63J-121N	RESISTOR
	R233	NRSA63J-222N	RESISTOR
	R234	NRSA63J-561N	RESISTOR
	R235	NRSA63J-222N	RESISTOR
	R236	QVZ3513-103	V RESISTOR,
	R237	NRSA63J-222N	RESISTOR
	R238	QVZ3513-103	V RESISTOR,
	R239	NRSA63J-473N	RESISTOR
	R240	QVZ3513-103	V RESISTOR,R-Y CAR
	R241	NRSA63J-823N	RESISTOR
	R242	NRSA63J-822N	RESISTOR
	R243	NRSA63J-562N	RESISTOR
	R244	NRSA63J-473N	RESISTOR
	R245	NRSA63J-822N	RESISTOR
	R246	NRSA63J-333N	RESISTOR
	R248	NRSA63J-392N	RESISTOR
	R249	NRSA63J-681N	RESISTOR
	R251	NRSA63J-473N	RESISTOR
	R252	NRSA63J-473N	RESISTOR
	R253	QVZ3513-103	V RESISTOR,B-Y CAR
	R254	NRSA63J-823N	RESISTOR
	R255	NRSA63J-332N	RESISTOR
	R256	NRSA63J-681N	RESISTOR
	R257	QVZ3513-222	V RESISTOR,BF
	R258	NRSA63J-105N	RESISTOR
	R259	NRSA63J-472N	RESISTOR
	R260	NRSA63J-122N	RESISTOR
	R261	NRSA63J-472N	RESISTOR
	R262	NRSA63J-102N	RESISTOR
	R263	NRSA63J-102N	RESISTOR
	R264	NRSA63J-121N	RESISTOR
	R265	NRSA63J-152N	RESISTOR
	R266	NRSA63J-561N	RESISTOR
	R267	NRSA63J-561N	RESISTOR
	R268	NRSA63J-822N	RESISTOR
	R269	NRSA63J-222N	RESISTOR
	R270	NRSA63J-222N	RESISTOR
	R285	NRSA63J-680N	RESISTOR
	R286	NRSA63J-105N	RESISTOR
	R288	NRSA63J-102N	RESISTOR
	R289	NRSA63J-102N	RESISTOR
	R290	NRSA63J-222N	RESISTOR
	R291	NRSA63J-222N	RESISTOR
	R292	NRSA63J-680N	RESISTOR
	R293	NRSA63J-105N	RESISTOR
	R294	NRSA63J-223N	RESISTOR
	R295	NRSA63J-102N	RESISTOR
	R296	NRSA63J-223N	RESISTOR
	R299	NRSA63J-222N	RESISTOR
	R300	NRSA63J-102N	RESISTOR
	R301	NRSA63J-223N	RESISTOR
	R302	NRSA63J-273N	RESISTOR
	R303	NRSA63J-222N	RESISTOR
	R304	NRSA63J-223N	RESISTOR
	R305	NRSA63J-273N	RESISTOR
	R306	NRSA63J-222N	RESISTOR
	R307	NRSA63J-223N	RESISTOR
	R308	NRSA63J-273N	RESISTOR
	R309	NRSA63J-222N	RESISTOR
	R310	NRSA63J-750N	RESISTOR
	R311	NRSA63J-750N	RESISTOR
	R312	NRSA63J-750N	RESISTOR

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R351	NRSA63J-101N	RESISTOR
	R352	NRSA63J-101N	RESISTOR
	R353	NRSA63J-101N	RESISTOR
	R354	NRSA63J-101N	RESISTOR
	R355	NRSA63J-101N	RESISTOR
	R356	NRSA63J-101N	RESISTOR
	R357	NRSA63J-101N	RESISTOR
	R358	NRSA63J-101N	RESISTOR
	R359	NRSA63J-101N	RESISTOR
	R360	NRSA63J-101N	RESISTOR
	R361	NRSA63J-101N	RESISTOR
	R362	NRSA63J-101N	RESISTOR
	R363	NRSA63J-101N	RESISTOR
	R364	NRSA63J-101N	RESISTOR
	R365	NRSA63J-101N	RESISTOR
	R366	NRSA63J-101N	RESISTOR
	R367	NRSA63J-101N	RESISTOR
	R368	NRSA63J-101N	RESISTOR
	R369	NRSA63J-101N	RESISTOR
	R370	NRSA63J-101N	RESISTOR
	R371	NRSA63J-101N	RESISTOR
	R372	NRSA63J-101N	RESISTOR
	R373	NRSA63J-101N	RESISTOR
	R374	NRSA63J-101N	RESISTOR
	RA101	EXB-P88104M	RESISTOR ARRAY
	RA102	EXB-P88104M	RESISTOR ARRAY
	B1	QRSA08J-0R0Y	RESISTOR
△	B3	PGZ00354	FERRITE BEADS
	B7	QRD161J-0R0	RESISTOR
	C1	NCF31HZ-223A	CAPACITOR
	C2	QETC1CM-476	E CAPACITOR
	C3	QETC1CM-476	E CAPACITOR
	C4	NCF31HZ-223A	CAPACITOR
	C5	NCF31HZ-223A	CAPACITOR
	C6	QETC1CM-476	E CAPACITOR
	C7	QETC1CM-476	E CAPACITOR
	C8	NCF31HZ-223A	CAPACITOR
	C9	QETC1CM-476	E CAPACITOR
	C10	NCF31HZ-223A	CAPACITOR
△	C11	NCS31HJ-100A	CAPACITOR
	C12	QETC1CM-476	E CAPACITOR
	C13	QETC1CM-476	E CAPACITOR
	C14	QETC1CM-476	E CAPACITOR
	C15	QETC1CM-106	E CAPACITOR
	C16	QETC1CM-476	E CAPACITOR
	C19	QETC1CM-476	E CAPACITOR
	C21	NCS31HJ-101A	CAPACITOR
	C22	NCF31CZ-104A	CAPACITOR
	C23	NCF31CZ-104A	CAPACITOR
	C24	NCF31CZ-104A	CAPACITOR
	C25	NCF31CZ-104A	CAPACITOR
	C26	NCS31HJ-101A	CAPACITOR
	C27	NCF31CZ-104A	CAPACITOR
	C28	QETC1CM-476	E CAPACITOR
	C29	NCB31HK-102A	CAPACITOR
	C30	QETC1CM-476	E CAPACITOR
	C31	NCF31CZ-104A	CAPACITOR
	C35	NCF31CZ-104A	CAPACITOR
	C36	NCS31HJ-100A	CAPACITOR
	C37	NCS31HJ-100A	CAPACITOR
	C38	NCF31CZ-104A	CAPACITOR
	C39	QETC1CM-476	E CAPACITOR
	C40	NCF31CZ-104A	CAPACITOR
	C41	NCB31EK-103A	CAPACITOR
	C42	NCB31EK-103A	CAPACITOR

#△ REF NO. PART NO. PART NAME, DESCRIPTION

C43	NCF31CZ-104A	CAPACITOR
C44	NCB31HK-561A	CAPACITOR
C45	NCF31CZ-104A	CAPACITOR
C47	NCF31CZ-104A	CAPACITOR
C52	QETC1CM-476	E CAPACITOR
C66	NCB31HK-102A	CAPACITOR
C67	NCS31HJ-470A	CAPACITOR
C68	NCS31HJ-470A	CAPACITOR
C69	NCB31CK-223A	CAPACITOR
C70	NCB31HK-222A	CAPACITOR
C71	QETC1CM-476	E CAPACITOR
C72	NCB31HK-271A	CAPACITOR
C73	NCB31HK-271A	CAPACITOR
C74	NCB31HK-271A	CAPACITOR
C76	NCF31CZ-104A	CAPACITOR
C79	NCB31HK-182A	CAPACITOR
C80	NCF31CZ-104A	CAPACITOR
C82	NCB31HK-471A	CAPACITOR
C83	NCB31HK-182A	CAPACITOR
C84	NCF31CZ-104A	CAPACITOR
C85	QEE81VM-474	TANTAL CAPACITOR
C86	QEE81VM-474	TANTAL CAPACITOR
C87	QEE81VM-474	TANTAL CAPACITOR
C88	QEE81VM-474	TANTAL CAPACITOR
C89	NCS31HJ-101A	CAPACITOR
C90	NCS31HJ-101A	CAPACITOR
C91	NCB31HK-122A	CAPACITOR
C92	NCF31CZ-104A	CAPACITOR
C95	NCF31CZ-104A	CAPACITOR
C97	QEE81VM-474	TANTAL CAPACITOR
C101	QETC1CM-476	E CAPACITOR
C103	NCB31EK-103A	CAPACITOR
C110	QETC1CM-476	E CAPACITOR
C112	QETC1CM-476	E CAPACITOR
C113	NCB31EK-103A	CAPACITOR
C114	NCB31HK-102A	CAPACITOR
C115	NCF31CZ-104A	CAPACITOR
C116	NCF31CZ-104A	CAPACITOR
C117	NCB31EK-103A	CAPACITOR
C118	NCB31EK-103A	CAPACITOR
C119	NCB31EK-103A	CAPACITOR
C120	NCB31EK-103A	CAPACITOR
C122	NCB31EK-103A	CAPACITOR
C123	PU57672-100	TRIMMER CAPACITOR
C124	NCS31HJ-150A	CAPACITOR
C125	NCB31HK-102A	CAPACITOR
C126	NCF31CZ-104A	CAPACITOR
C127	NCB31EK-103A	CAPACITOR
C128	QCS31HJ-221	CAPACITOR
C129	QETC1HM-474	E CAPACITOR
C130	QETC1HM-105	E CAPACITOR
C131	QEE81VM-105	TANTAL CAPACITOR
C132	NCS31HJ-560A	CAPACITOR
C133	QETC1CM-476	E CAPACITOR
C134	QETC1CM-476	E CAPACITOR
C135	NCF31CZ-104A	CAPACITOR
C136	NCS31HJ-101A	CAPACITOR
C137	NCF31CZ-104A	CAPACITOR
C138	NCF31CZ-104A	CAPACITOR
C139	NCF31CZ-104A	CAPACITOR
C140	NCB31EK-103A	CAPACITOR
C141	NCF31CZ-104A	CAPACITOR
C142	QETC1CM-476	E CAPACITOR
C143	QCS31HJ-100	CAPACITOR

#△ REF NO. PART NO. PART NAME, DESCRIPTION

C144	NCF31CZ-104A	CAPACITOR
C145	QEE81VM-474	TANTAL CAPACITOR
C146	NCF31CZ-104A	CAPACITOR
C147	QEE81VM-474	TANTAL CAPACITOR
C148	QCS31HJ-101	CAPACITOR
C152	NCF31CZ-104A	CAPACITOR
C153	QEE81VM-474	TANTAL CAPACITOR
C154	NCS31HJ-470A	CAPACITOR
C155	NCS31HJ-470A	CAPACITOR
C156	NCF31CZ-104A	CAPACITOR
C157	QETC0JM-476	E CAPACITOR
C158	QETC1HM-105	E CAPACITOR
C159	QETC1CM-476	E CAPACITOR
C162	QEE81VM-474	TANTAL CAPACITOR
C163	NCB31HK-271A	CAPACITOR
C164	QEE81VM-474	TANTAL CAPACITOR
C165	QEE81VM-474	TANTAL CAPACITOR
C166	NCB31HK-271A	CAPACITOR
C167	NCB31HK-271A	CAPACITOR
C168	QEE81VM-474	TANTAL CAPACITOR
C169	QCS31HJ-271	M CAPACITOR
C170	NCF31CZ-104A	CAPACITOR
C171	NCB31HK-271A	CAPACITOR
C173	NCF31CZ-104A	CAPACITOR
C174	NCF31CZ-104A	CAPACITOR
C175	NCS31HJ-100A	CAPACITOR
C176	NCB31EK-103A	CAPACITOR
△ C177	QCZ0214-103	CAPACITOR
C205	QETC1CM-476	E CAPACITOR
C207	QETC1CM-476	E CAPACITOR
C209	QETC1CM-476	E CAPACITOR
C210	NCS31HJ-470A	CAPACITOR
C211	QETC1CM-476	E CAPACITOR
C212	QETC1CM-476	E CAPACITOR
C213	QETC1CM-476	E CAPACITOR
C214	QETC1CM-476	E CAPACITOR
C215	NCS31HJ-150A	CAPACITOR
C216	QETC1CM-476	E CAPACITOR
C217	QETC1CM-476	E CAPACITOR
C218	NCF31CZ-104A	CAPACITOR
C219	NCF31CZ-104A	CAPACITOR
C220	NCF31CZ-104A	CAPACITOR
C221	NCF31CZ-104A	CAPACITOR
C222	QETC1HM-105	E CAPACITOR
C223	QETC1CM-476	E CAPACITOR
C225	NCF31CZ-104A	CAPACITOR
C226	NCS31HJ-180A	CAPACITOR
C227	QETC1HM-105	E CAPACITOR
C228	NCB31EK-103A	CAPACITOR
C229	NCS31HJ-100A	CAPACITOR
C230	NCB31EK-103A	CAPACITOR
C231	QETC1CM-106	E CAPACITOR
C232	NCF31EZ-473A	CAPACITOR
C233	NCF31CZ-104A	CAPACITOR
C234	NCB31EK-103A	CAPACITOR
C235	NCF31EZ-473A	CAPACITOR
C236	QETC1HM-105	E CAPACITOR
C237	NCB31EK-103A	CAPACITOR
C238	QETC1CM-106	E CAPACITOR
C239	NCF31EZ-473A	CAPACITOR
C240	NCF31CZ-104A	CAPACITOR
C241	NCF31CZ-104A	CAPACITOR
C242	QETC1AM-336	E CAPACITOR
C243	NCB31EK-103A	CAPACITOR
C244	QETC1CM-106	E CAPACITOR
C245	NCB31EK-103A	CAPACITOR

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#	REF NO.	PART NO.	PART NAME, DESCRIPTION
	C246	NCB31EK-103A	CAPACITOR
	C247	QETC1CM-476	E CAPACITOR
	C258	NCB31HK-102A	CAPACITOR
	C259	NCF31CZ-104A	CAPACITOR
	C260	NCS31HJ-470A	CAPACITOR
	C261	NCS31HJ-470A	CAPACITOR
	C262	QETC1CM-476	E CAPACITOR
	C267	NCF31CZ-104A	CAPACITOR
	C268	PU57672-100	TRIMMER CAPACITOR,
	C269	NCS31HJ-680A	CAPACITOR
	C270	NCS31HJ-390A	CAPACITOR
	C271	NCF31CZ-104A	CAPACITOR
Δ	C272	NCS31HJ-470A	CAPACITOR
Δ	C273	NCS31HJ-470A	CAPACITOR
	C275	QETC1HM-335	E CAPACITOR
	C276	QETC1CM-106	E CAPACITOR
Δ	C277	NCB31EK-103A	CAPACITOR
	C278	NCS31HJ-101A	CAPACITOR
	C279	NCS31HJ-101A	CAPACITOR
	C280	NCF31CZ-104A	CAPACITOR
	C281	NCF31CZ-104A	CAPACITOR
	C282	NCS31HJ-151A	CAPACITOR
	C283	NCF31CZ-104A	CAPACITOR
	C285	NCS31HJ-470A	CAPACITOR
	C286	QETC1CM-476	E CAPACITOR
	C287	NCF31CZ-104A	CAPACITOR
	C289	NCB31HK-102A	CAPACITOR
	C290	NCS31HJ-470A	CAPACITOR
	C291	QCS31HJ-151	CAPACITOR
	C301	QETC1CM-476	E CAPACITOR
	C303	QETC1CM-476	E CAPACITOR
	C304	QETC1CM-476	E CAPACITOR
	C305	QETC1CM-476	E CAPACITOR
	C308	QETC1CM-476	E CAPACITOR
	C309	QETC1CM-476	E CAPACITOR
	C310	QETC1CM-476	E CAPACITOR
	C313	QETC1CM-476	E CAPACITOR
	C314	QETC1CM-476	E CAPACITOR
	C315	QETC1CM-476	E CAPACITOR
	C316	QETC1CM-476	E CAPACITOR
	C317	QETC1CM-476	E CAPACITOR
	C318	QETC1CM-476	E CAPACITOR
	L1	PU48530-470J	COIL
	L101	PU48530-101J	COIL
	L201	PU48530-680J	COIL
	LPF1	PGZ01101	LOW PASS FILTER
	LPF101	PU60571	LOW PASS FILTER
	LPF102	PU60571	LOW PASS FILTER
	LPF201	PGZ01101	LOW PASS FILTER
	BPF101	PU57072-2	BAND PASS FILTER
	BPF201	PU57072-2	BAND PASS FILTER
Δ	LC1	PU59736-223	N FILTER
Δ	LC2	PU59736-223	N FILTER
Δ	LC3	PU59736-223	N FILTER
Δ	LC4	PU59736-223	N FILTER
Δ	LC5	PU59736-223	N FILTER
Δ	LC101	PU59736-223	N FILTER
Δ	LC102	PU59736-223	N FILTER
Δ	LC103	PU59736-223	N FILTER
Δ	LC104	PU59736-223	N FILTER

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
Δ	LC201	PU59736-223	N FILTER
Δ	LC202	PU59736-223	N FILTER
Δ	LC203	PU59736-223	N FILTER
Δ	LC204	PU59736-223	N FILTER
Δ	LC205	PU59736-223	N FILTER
Δ	LC301	PU59736-223	N FILTER
Δ	X101	PU60568	CRYSTAL RESONATOR
Δ	X201	PU60568	CRYSTAL RESONATOR
Δ	X203	PGZ01522	CRYSTAL RESONATOR
	SW101	PU54440	SWITCH
Δ	K1	PGZ00627Z	CHIP FERRITE BEADS, X13(K1-13)
	J2	PJ62-10F2D2PQNN	J.WIRE
	TP1	PU54983	TEST PIN, X44
	TP101	PU59391	STYLE PIN
	CN1	PU58844-11	CONNECTOR
	CN2	PU58844-8	CONNECTOR
	CN3	PU58844-5	CONNECTOR
	CN4	PU58844-6	CONNECTOR
	CN5	PU58844-2	CONNECTOR
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* 22. MECHACON SUB BOARD ASSY<66> *			
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	PWBA	PRK20139A-02	MECHACON SUB BOARD ASSY
	IC1	LA7225	IC
	IC203	VC2032	IC
	IC204	VC2032	IC
	Q1	2SA1309R,S	TRANSISTOR
	Q2	2SA1309R,S	TRANSISTOR
	R1	QRD167J-223	RESISTOR
	R2	QRD167J-104	RESISTOR
	R3	QRD167J-120	RESISTOR
	R4	QRD167J-152	RESISTOR
	R5	QRD167J-0R0	RESISTOR
	R6	QRD167J-102	RESISTOR
	R7	QRD167J-104	RESISTOR
	R8	QRD167J-102	RESISTOR
	R9	QRD167J-222	RESISTOR
	R10	QRD167J-223	RESISTOR
	R11	QRD167J-222	RESISTOR
	R12	QRD167J-223	RESISTOR
	R228	QRD167J-102	RESISTOR
	R229	QRD167J-103	RESISTOR
	R230	QRD167J-103	RESISTOR
	R231	QRD167J-561	RESISTOR
	R232	QRD167J-103	RESISTOR
	R233	QRD167J-222	RESISTOR
	R234	QRD167J-222	RESISTOR
	R235	QRD167J-562	RESISTOR
	R236	QRD167J-102	RESISTOR
	R237	QRD167J-102	RESISTOR
	R238	QRD167J-103	RESISTOR
	R239	QRD167J-102	RESISTOR
	C1	QER61EM-475	E CAPACITOR
	C2	QFN41HJ-273	M CAPACITOR

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
C3		QER61HM-225	E CAPACITOR
C4		QER61AM-476	E CAPACITOR
C5		QER60JM-476	E CAPACITOR
C8		QCB81HJ-471	CAPACITOR
C201		QER61CM-226	E CAPACITOR
C202		QCF31HP-103	CAPACITOR
C203		QER61CM-226	E CAPACITOR
C204		QCF31HP-103	CAPACITOR
C205		QCS31HJ-101	CAPACITOR
C206		QCS31HJ-101	CAPACITOR
C207		QCF31HP-102	CAPACITOR
C208		QCS31HJ-101	CAPACITOR
L1		PU59060	TRAP COIL
L201		PU48530-101J	COIL
CN1		PU58844-4	CONNECTOR
CN4		PU59513-2	CONNECTOR
CN5		PU59513-3	CONNECTOR
CN6		PU58844-2	CONNECTOR
CN101		PU58844-5R	CONNECTOR
CN102		PU58844-5	CONNECTOR
CN103		PU59513-6	CONNECTOR
CN201		PU58844-6R	CONNECTOR
CN202		PU58844-7	CONNECTOR

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 \* 23. OSD/BATTERY BOARD ASSY<74><75> \*  
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PWBA	PRK20142A	ON SCREEN/BATTERY BOARD ASSY
	--OSD/BATTERY BOARD(1)ASSY<74>--	
SPC 2	PRD30030-15	PAD
BAT1	PGZ00785	BATTERY CASE, X2
BAT2	PGZ01334	BATTERY CASE
BAT3	PRD30543	BATTERY CASE
BAT4	PRD42905-02	BATTERY SHEET
PWBA1	PRK20142A1	ON SCREEN/BATTERY BOARD(1) AY
IC1	IC-PST523H-2	IC
Q1	2SA933S(RS)	TRANSISTOR
Q2	2SD636Q,R,S	TRANSISTOR
Q51	DTC114EF	TRANSISTOR
D1	1SS133	DIODE
D2	LTZ-MR15	DIODE
D3	1SS133	DIODE
D4	1SS133	DIODE
D5	1SS133	DIODE
R1	QRD161J-102	RESISTOR
R3	QRD161J-272	RESISTOR
R4	QRD161J-104	RESISTOR
R5	QRD161J-561	RESISTOR
R6	QRD161J-103	RESISTOR
R7	QRD161J-222	RESISTOR
R8	QRD161J-392	RESISTOR
R9	QRD161J-222	RESISTOR
R10	QRD161J-821	RESISTOR
R11	QRD161J-103	RESISTOR

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
R12		QRD161J-562	RESISTOR
R13		QRD161J-103	RESISTOR
R14		QRD161J-681	RESISTOR
R15		QRD161J-0R0	RESISTOR
R51		QRD161J-102	RESISTOR
R56		QRD161J-102	RESISTOR
B22		QRD161J-102	RESISTOR
B23		QRD161J-102	RESISTOR
B24		QRD161J-102	RESISTOR
C1		QER61CM-476	E CAPACITOR
C2		QCVB1CN-103	CAPACITOR
C3		QER61CM-106	E CAPACITOR
C4		QER61CM-106	E CAPACITOR
C5		QER41AM-107	E CAPACITOR
C6		PU57672-400	TRIMMER CAPACITOR,TDG POS ADJ
C7		QER61CM-476	E CAPACITOR
C8		QCVB1CN-103	CAPACITOR
C9		QER61CM-476	E CAPACITOR
C10		QCS31HJ-220	CAPACITOR
C11		QCS31HJ-220	CAPACITOR
C12		QCS31HJ-220	CAPACITOR
C13		QCS31HJ-561	CAPACITOR
C14		QCVB1CN-103	CAPACITOR
C51		QER61CM-476	E CAPACITOR
L1		PU59152-101J	COIL
BUZ1		PGZ01673	BUZZER
J1		P228-22A2A2LLCC	WIRE
SCW1		SDSP2606Z	SCREW, X2
SPC1		PRD43011	SHEET
TP1		PU54983	TEST PIN, X2(TP1,GND)
CN1		PU58844-7	CONNECTOR
CN2		PU58844-8Y	CONNECTOR
CN3		PU58844-3R	CONNECTOR
		--OSD/BATTERY BOARD(2)ASSY<75>--	
PWBA2		PRK20142A2	ON SCREEN/BATTERY BOARD(2) AY
IC101		MB89010A-108	IC
IC102		BU4013B	IC
	OR	TC4013BP	IC
IC103		M52684AP	IC
Q101		2SA1309R,S	TRANSISTOR
Q102		DTC114EF	TRANSISTOR
R101		QRD161J-472	RESISTOR
R102		PU59499	RESISTOR
R103		PU59499	RESISTOR
R104		PU59499	RESISTOR
R105		QRD161J-102	RESISTOR
R106		QRD161J-472	RESISTOR
R107		QRD161J-222	RESISTOR
R108		QRD161J-681	RESISTOR
R109		QRD161J-222	RESISTOR
R110		QRD161J-103	RESISTOR
R111		QRD161J-102	RESISTOR
R112		QRD161J-471	RESISTOR
R113		QRD161J-182	RESISTOR
R114		QRD161J-154	RESISTOR
R115		QRD161J-271	RESISTOR

<75><76><77><65>

#△ REF NO.	PART NO.	PART NAME, DESCRIPTION
R116	QRD161J-152	RESISTOR
R117	QRD161J-103	RESISTOR
R118	QRD161J-103	RESISTOR
C101	QER61CM-476	E CAPACITOR
C102	QCVB1CM-103	CAPACITOR
C103	PU57601-335MC	E CAPACITOR
C104	QCVB1CM-103	CAPACITOR
C105	QCSB1HJ-150	CAPACITOR
C106	QCSB1HJ-330	CAPACITOR
C107	QER61HM-335GZ	E CAPACITOR
C108	QCSB1HJ-101	CAPACITOR
C109	QER61CM-106	E CAPACITOR
C110	QCVB1CM-103	CAPACITOR
C111	QCXB1CN-152	CAPACITOR
C112	QCSB1HJ-220	CAPACITOR
C113	QCVB1CM-103	CAPACITOR
C114	QCVB1CM-103	CAPACITOR
C115	QFN31HJ-222	M CAPACITOR
C116	QER61HM-105	E CAPACITOR
L101	PU58333-120K	COIL
L102	PU59152-100J	COIL
△ CF101	PU60086	CERAMIC FILTER
TP101	PU56008	TEST-PIN
CN101	PGZ01081-09	CONNECTOR
CN102	PGZ01081-04	CONNECTOR
CN103	PGZ01081-03	CONNECTOR
*****		
*****		
* 24. REAR-1 BOARD ASSY<76> *		
*****		
PWBA	PRK20148A	REAR-1 BOARD ASSY
	PRK20148B	REAR-1 BOARD ASSY
Q1	2SC1740S(QRS)	TRANSISTOR
D1	RD5.1EB	ZENER DIODE
D2	RD5.1EB	ZENER DIODE
D3	RD5.1EB	ZENER DIODE
D4	RD5.1EB	ZENER DIODE
D5	RD5.1EB	ZENER DIODE
D6	RD5.1EB	ZENER DIODE
D7	RD20EB	ZENER DIODE
D8	RD20EB	ZENER DIODE
D9	1SS133	DIODE
D10	RD2.0EB	ZENER DIODE
R1	QRD167J-750	RESISTOR
R2	QRD167J-750	RESISTOR
R3	QRD167J-750	RESISTOR
R4	QRD167J-103	RESISTOR
R5	QRD167J-103	RESISTOR
R6	QRD167J-103	RESISTOR
RA1	QRB077J-103	RESISTOR ARRAY
OR	QRB079J-103	RESISTOR ARRAY
C1	QCF31HP-223	CAPACITOR
C2	QCF31HP-223	CAPACITOR
L1	PU48530-101J	COIL
S1	PGZ00469-02	SLIDE SWITCH
S2	PGZ00096-108	DIP SW

#△ REF NO.	PART NO.	PART NAME, DESCRIPTION
RY1	PU56539	DC RELAY
TB1	PGZ01267-04	TERMINAL BOARD
△ VA1	PU49624-2	VARISTOR
△ VA2	PU49624-2	VARISTOR
CN1	PU59513-4	CONNECTOR
CN2	PU59513-4R	CONNECTOR
CN3	PU59513-4	CONNECTOR
CN4	PU59513-4R	CONNECTOR
CN5	PU58844-109	CONNECTOR
CN6	PU58844-102	CONNECTOR
CN7	PU58844-104	CONNECTOR
*****		
*****		
* 25. DISPLAY/STEP BOARD ASSY<77><65> *		
*****		
PWBA	PRK10095A-03	DISPLAY BOARD ASSY
	PRK10095B-03	DISPLAY BOARD ASSY
--DISPLAY BOARD ASSY<77>--		
PWBA1	PRK10095A1-03	DISPLAY BOARD ASSY
	PRK10095B1-03	DISPLAY BOARD ASSY
IC1	MSC7112-01SS	IC
IC2	M50253P	IC
IC3	M5232L	IC
Q1	DTA114EF	TRANSISTOR
D1	RD8.2EB2	ZENER DIODE
D2	SLR-34MC3F	LE DIODE
D3	SLR-34MC3F	LE DIODE
D4	SLR-34MC3F	LE DIODE
D5	SLR-55MC3F	LE DIODE
D6	SLR-55MC3F	LE DIODE
D7	SLR-55DC3F	LE DIODE
D8	SLR-55MC3F	LE DIODE
D9	1SS133	DIODE
D10	1SS133	DIODE
R1	QRD167J-102	RESISTOR
R2	QRD167J-102	RESISTOR
R3	QRD167J-102	RESISTOR
R4	QRD167J-273	RESISTOR
R5	QRD167J-333	RESISTOR
R6	QRD167J-102	RESISTOR
R7	QRD167J-102	RESISTOR
R8	QRD167J-472	RESISTOR
R9	QRD167J-472	RESISTOR
R10	QRD167J-472	RESISTOR
R11	QRD167J-472	RESISTOR
R13	QRD167J-473	RESISTOR
R14	QRD167J-473	RESISTOR
R15	QRD167J-563	RESISTOR
R16	QRD167J-0R0	RESISTOR
R17	QRD167J-271	RESISTOR
R19	QRD167J-561	RESISTOR
R20	QRD167J-331	RESISTOR
R21	QRD167J-331	RESISTOR
R22	QRD167J-331	RESISTOR
R23	QVZ3507-474	V RESISTOR, V.LOCK
R24	PU60257	V RESISTOR, P.SHARP
R25	PGZ01674	V RESISTOR, TD BRIGHT



#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R26	QRD167J-103	RESISTOR
	RA1	QRB037J-222	RESISTOR ARRAY
	C1	QCS31HJ-101	CAPACITOR
	C2	QER61HM-104	E CAPACITOR
	C3	QCF11HP-223	CAPACITOR
	C4	QER60JM-336	E CAPACITOR
	C5	QCS31HJ-560	CAPACITOR
	C6	QCF11HP-473	CAPACITOR
	C7	QCS31HJ-560	CAPACITOR
	C8	QCS31HJ-560	CAPACITOR
	C9	QCS31HJ-680	CAPACITOR
	C10	QCS31HJ-680	CAPACITOR
	C11	QER41HM-106	E CAPACITOR
	C12	QER41HM-475	E CAPACITOR
	C13	QFN41HJ-104	M CAPACITOR
	S1	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S2	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	FDP1	PGZ01589	FLUORESCENT DISPLAY PANEL
	HD1	PQ31309	FDP HOLDER(L)
	HD2	PQ31310	FDP HOLDER(R)
	HD3	PQM30038-1-2	LED HOLDER, X4
	HD4	PQ42602	LED SHADE
	JA1	PGZ01671	PIN JACK
	CN1	PU59513-6	CONNECTOR
	CN2	PU58844-3	CONNECTOR
	CN3	PU58844-102R	CONNECTOR
	CN4	PU58844-5Y	CONNECTOR
	CN5	PU58844-2	CONNECTOR
	CN6	PU58844-3R	CONNECTOR
	CN7	PU58844-4Y	CONNECTOR
	CN8	PU58844-2Y	CONNECTOR
	CN9	PU58844-4	CONNECTOR
	CN10	PU58844-12	CONNECTOR
	CN11	PU58844-6R	CONNECTOR
	CN12	PU58844-5	CONNECTOR
	CN13	PU59513-12	CONNECTOR
	CN14	PU58844-10	CONNECTOR
	--STEP BOARD ASSY<65>--		
	PWBA2	PRK10095A2-01	STEP BOARD ASSY
	CN1	PU58844-12	CONNECTOR
	CN2	PU58844-4	CONNECTOR
	CN3	PU60566-116	CONNECTOR
*****			
*****			
* 26. TIMER BOARD ASSY<79> *			
*****			
	PWBA	PRK20141A	TIMER BOARD ASSY
	RLY1	PU55260	RELAY
	STK1	PGZ01428-064	IC SOCKET, (FOR IC1)
	IC1	UPD75P218C-139D	IC (925E #170-, 920E #212-)
	IC2	M5278L56	IC
	IC3	IC-PST523H-2	IC

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	Q1	2SC3311A(RS)	TRANSISTOR
	Q2	DTC124EF	TRANSISTOR
	Q3	DTC124EF	TRANSISTOR
	D1	RD9.1ES-T1B2	ZENER DIODE
	D2	1SS133	DIODE
	D3	1SS133	DIODE
	D4	RD8.2ES-T1B2	ZENER DIODE
	D5	1SS133	DIODE
	D6	1SS133	DIODE
	D7	LTZ-MR15	DIODE
	D8	1SS133	DIODE
	D9	1SS133	DIODE
	D10	1SS133	DIODE
	D11	1SS133	DIODE
	D12	1SS133	DIODE
	D13	1SS133	DIODE
	D14	1SS133	DIODE
	R1	QRD161J-472	RESISTOR
	R2	QRD161J-682	RESISTOR
	R3	QRD161J-104	RESISTOR
	R4	QRD161J-471	RESISTOR
	R5	QRD161J-102	RESISTOR
	R6	QRD161J-333	RESISTOR
	R7	QRD161J-472	RESISTOR
	R8	QRD161J-472	RESISTOR
	R9	QRD161J-472	RESISTOR
	R10	QRD161J-472	RESISTOR
	R11	QRD161J-472	RESISTOR
	R12	QRD161J-103	RESISTOR
	R13	QRD161J-102	RESISTOR
	R14	QRD161J-102	RESISTOR
	R15	QRD161J-102	RESISTOR
	R16	QRD161J-102	RESISTOR
	R17	QRD161J-334	RESISTOR
	R18	QRD161J-103	RESISTOR
	R19	QRD161J-472	RESISTOR
	R20	QRD161J-472	RESISTOR
	R21	QRD161J-472	RESISTOR
	R22	QRD161J-472	RESISTOR
	R23	QRD161J-102	RESISTOR
	R24	QRD161J-102	RESISTOR
	R25	QRD161J-102	RESISTOR
	R26	QRD161J-0R0	RESISTOR
	R27	QRD161J-0R0	RESISTOR
	R28	QRD161J-102	RESISTOR
	R29	QRD161J-102	RESISTOR
	R30	QRD161J-103	RESISTOR
	R31	QRD161J-103	RESISTOR
	R32	QRD161J-103	RESISTOR
	R33	QRD161J-103	RESISTOR
	R34	QRD161J-223	RESISTOR
	R35	QRD161J-223	RESISTOR
	R36	QRD161J-103	RESISTOR
	R37	QRD161J-102	RESISTOR
	R38	QRD161J-103	RESISTOR
	R40	QRD161J-0R0	RESISTOR
	R41	QRD161J-103	RESISTOR
	R42	QRD161J-223	RESISTOR
	R43	QRD161J-102	RESISTOR
	R44	QRD161J-104	RESISTOR
	R45	QRD161J-103	RESISTOR
	R46	QRD161J-223	RESISTOR
	R47	QRD161J-104	RESISTOR
	R48	QRD161J-103	RESISTOR
	R49	QRD161J-103	RESISTOR
	R50	QRD161J-103	RESISTOR

[illegible]

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R7	QRD167J-222	RESISTOR
	R8	QRD167J-222	RESISTOR
	R9	QRD167J-332	RESISTOR
	R10	QRD167J-472	RESISTOR
	R11	QRD167J-103	RESISTOR
	R12	QRD167J-223	RESISTOR
	R13	QRD167J-563	RESISTOR
	R14	QRD167J-563	RESISTOR
	S1	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S2	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S3	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S4	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S5	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S6	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S7	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S8	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S9	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S10	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S11	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S12	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S13	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S14	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S15	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S16	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S17	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S18	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S19	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S20	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S21	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S22	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S23	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S24	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S25	PU53598	TACT SWITCH
		PU59499	BUS WIRE
	OR	PU57550	TACT SWITCH
	S26	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S27	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S28	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	S30	PU53598	TACT SWITCH
	OR	PU57550	TACT SWITCH
	WR1	PQ32556	FPC

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
CN1	PU60566-116	CONNECTOR	
*****			
*****			
* 28. SWITCH BOARD ASSY<93><96> *			
*****			
PWBA	PRK10094A-01	SWITCH BOARD ASSY	
	PRK10094B-01	SWITCH BOARD ASSY	
--SWITCH-1 BOARD ASSY<93>--			
PWBA1	PRK10094A1-01	SWITCH-1 BOARD ASSY	
	PRK10094B1-01	SWITCH-1 BOARD ASSY	
D1	SLH-34VT3F	LE DIODE	
D2	1SS133	DIODE	
D3	1SS133	DIODE	
D4	1SS133	DIODE	
D5	1SS133	DIODE	
D6	1SS133	DIODE	
R1	QRD167J-331	RESISTOR	
R2	QRD167J-102	RESISTOR	
S1	PU58486-1-1	SLIDE SWITCH	
S2	PU58486-1-1	SLIDE SWITCH	
S3	PU58486-1-1	SLIDE SWITCH	
S4	PU58486-1-1	SLIDE SWITCH	
S5	PGZ01672	TACT SWITCH	
S6	PU58486-1-1	SLIDE SWITCH	
S7	PU58488-1-1	SLIDE SWITCH	
S8	PU58486-1-1	SLIDE SWITCH	
S9	PU58486-1-1	SLIDE SWITCH	
S10	PU53598	TACT SWITCH	
	OR PU57550	TACT SWITCH	
HD1	PQM30038-3	LED HOLDER	
J2	QWE222-09A2A2	WIRE	
J3	QWE223-15A2A2	WIRE	
J4	P220-18A2A2NNCN	J.WIRE	
CN1	PU58844-4	CONNECTOR	
CN2	PU58844-2	CONNECTOR	
CN3	PU58844-4Y	CONNECTOR	
CN4	PU58844-3	CONNECTOR	
CN5	PU58844-3Y	CONNECTOR	
--SWITCH-2 BOARD ASSY<96>--			
PWBA2	PRK10094A2	SWITCH-2 BOARD ASSY	
S101	PGZ01672	TACT SWITCH	
S102	PGZ01672	TACT SWITCH	
CN101	PU58844-4	CONNECTOR	
*****			
*****			
* 29. RS-232C BOARD ASSY<95> BR-S925E *			
*****			
PWBA	PRK20115A	RS232C BOARD ASSY,BR-S925E	
IC1	M50747E-2C6SP	IC	
IC2	M50927E-258SP	IC	
IC3	ICL232CPE	IC	

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
IC4	TA78L005AP	IC	
IC5	IC-PST523H-2	IC	
IC6	M6M80021P	IC	
Q1	2SD636Q,R	TRANSISTOR	
D1	1SS133	DIODE	
D2	RD7.5ES-T1B1	ZENER DIODE	
R1	QRD161J-223	RESISTOR	
R2	QRD161J-223	RESISTOR	
R3	QRD161J-223	RESISTOR	
R4	QRD161J-223	RESISTOR	
R5	QRD161J-103	RESISTOR	
R6	QRD161J-103	RESISTOR	
R7	QRD161J-103	RESISTOR	
R8	QRD161J-103	RESISTOR	
R9	QRD161J-103	RESISTOR	
R10	QRD161J-103	RESISTOR	
R11	QRD161J-103	RESISTOR	
R17	QRD161J-102	RESISTOR	
R18	QRD161J-102	RESISTOR	
R19	QRD161J-102	RESISTOR	
R20	QRD161J-102	RESISTOR	
R21	QRD161J-102	RESISTOR	
R22	QRD161J-102	RESISTOR	
R23	QRD161J-102	RESISTOR	
R24	QRD161J-102	RESISTOR	
R25	QRD161J-102	RESISTOR	
R26	QRD161J-102	RESISTOR	
R27	QRD161J-102	RESISTOR	
R28	QRD161J-102	RESISTOR	
R29	QRD161J-102	RESISTOR	
R30	QRD161J-102	RESISTOR	
R31	QRD161J-102	RESISTOR	
R32	QRD161J-102	RESISTOR	
R33	QRD161J-102	RESISTOR	
R34	QRD161J-102	RESISTOR	
R35	QRD161J-102	RESISTOR	
R36	QRD161J-102	RESISTOR	
R37	QRD161J-102	RESISTOR	
R38	QRD161J-102	RESISTOR	
R39	QRD161J-102	RESISTOR	
R40	QRD161J-102	RESISTOR	
R41	QRD161J-105	RESISTOR	
R42	QRD161J-102	RESISTOR	
R43	QRD161J-102	RESISTOR	
R44	QRD161J-102	RESISTOR	
R45	QRD161J-102	RESISTOR	
R46	QRD161J-103	RESISTOR	
R47	QRD161J-103	RESISTOR	
R48	QRD161J-103	RESISTOR	
R49	QRD161J-103	RESISTOR	
R50	QRD161J-223	RESISTOR	
R51	QRD161J-223	RESISTOR	
R52	QRD161J-223	RESISTOR	
R53	QRD161J-223	RESISTOR	
R54	QRD161J-223	RESISTOR	
R55	QRD161J-223	RESISTOR	
R56	QRD161J-223	RESISTOR	
R57	QRD161J-223	RESISTOR	
R58	QRD161J-103	RESISTOR	
R59	QRD161J-222	RESISTOR	
R60	QRD161J-470	RESISTOR	
R61	QRD161J-102	RESISTOR	
R62	QRD161J-103	RESISTOR	
R63	QRD161J-103	RESISTOR	
R64	QRD161J-103	RESISTOR	

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#	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R65	QRD161J-103	RESISTOR
	R66	QRD161J-103	RESISTOR
	R67	QRD161J-103	RESISTOR
	R68	QRD161J-102	RESISTOR
	R69	QRD161J-102	RESISTOR
	R70	QRD161J-102	RESISTOR
	R71	QRD161J-102	RESISTOR
	R72	QRD161J-102	RESISTOR
	R73	QRD161J-102	RESISTOR
	R74	QRD161J-102	RESISTOR
	R75	QRD161J-105	RESISTOR
	R76	QRD161J-563	RESISTOR
	R77	QRD122J-101	RESISTOR
	R78	QRD161J-0R0	RESISTOR
	R80	QRD161J-102	RESISTOR
	R81	QRD161J-123	RESISTOR
	C1	QCF31HP-223	CAPACITOR
	C3	QCS31HJ-330	CAPACITOR
	C4	QCS31HJ-330	CAPACITOR
	C5	QEE81CM-226	TANTAL CAPACITOR
	C6	QEE81CM-226	TANTAL CAPACITOR
	C7	QER61CM-226	E CAPACITOR
	C8	QER61CM-226	E CAPACITOR
	C9	QER41CM-226	E CAPACITOR
	C10	QER61CM-226	E CAPACITOR
	C11	QCF31HP-103	CAPACITOR
	C12	QCF31HP-103	CAPACITOR
	C13	QER61CM-226	E CAPACITOR
	C14	QCF31HP-103	CAPACITOR
	C15	QER61CM-226	E CAPACITOR
	C16	QER61CM-106	E CAPACITOR
	L1	PU48530-101J	COIL
△	X1	PGZ00157	CRYSTAL RESONATOR
△	X2	PU60030	RESONATOR
△	OR	PU60782	RESONATOR
△	TH1	PU52108-100K	POSITIVE THERMISTOR
	SKT1	PGZ01428-064	IC SOCKET,(FOR IC1)
	TP1	PU54983	TEST PIN, X5(TP1-4,GND)
	CN1	PU58844-109	CONNECTOR
	CN2	PU58844-110Y	CONNECTOR
	CN3	PU58844-105R	CONNECTOR
	CN4	PU58844-9	CONNECTOR
	CN5	PU58844-102	CONNECTOR
	CN6	PU58844-106	CONNECTOR

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 \* 30. REAR-2 BOARD ASSY<97> BR-S925E \*  
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PWBA	PRK20151A-01	REAR-2 BOARD ASSY,BR-S925E
D1	HZS15EB2	ZENER DIODE
D2	HZS15EB2	ZENER DIODE
D5	HZS15EB2	ZENER DIODE
D6	HZS15EB2	ZENER DIODE
D7	HZS15EB2	ZENER DIODE
D8	HZS15EB2	ZENER DIODE
D9	HZS15EB2	ZENER DIODE
D10	HZS15EB2	ZENER DIODE

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
	D11	HZS15EB2	ZENER DIODE
	D12	HZS15EB2	ZENER DIODE
	D13	HZS15EB2	ZENER DIODE
	D14	HZS15EB2	ZENER DIODE
	D15	HZS15EB2	ZENER DIODE
	D16	HZS15EB2	ZENER DIODE
	D17	HZS15EB2	ZENER DIODE
	D18	HZS15EB2	ZENER DIODE
	D19	HZS15EB2	ZENER DIODE
	D20	HZS15EB2	ZENER DIODE
	CN1	PU58844-5	CONNECTOR
	CN2	PU58844-5R	CONNECTOR
	CN4	PU58844-2	CONNECTOR

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 \* 31. REAR-2 BOARD ASSY<97> BR-S920E \*  
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PWBA	PRK20151B-01	REAR-2 BOARD ASSY,BR-S920E
D1	HZS15EB2	ZENER DIODE
D2	HZS15EB2	ZENER DIODE
D5	HZS15EB2	ZENER DIODE
D6	HZS15EB2	ZENER DIODE
D7	HZS15EB2	ZENER DIODE
D8	HZS15EB2	ZENER DIODE
D9	HZS15EB2	ZENER DIODE
D10	HZS15EB2	ZENER DIODE
D11	HZS15EB2	ZENER DIODE
D12	HZS15EB2	ZENER DIODE
D13	HZS15EB2	ZENER DIODE
D14	HZS15EB2	ZENER DIODE
D15	HZS15EB2	ZENER DIODE
D16	HZS15EB2	ZENER DIODE
D17	HZS15EB2	ZENER DIODE
D18	HZS15EB2	ZENER DIODE
D19	HZS15EB2	ZENER DIODE
D20	HZS15EB2	ZENER DIODE
CN1	PU58844-5	CONNECTOR
CN2	PU58844-5R	CONNECTOR